WEST MARKETING ISSUE
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TVA Developing New Manufacturing Process for Super

KNOXVILLE—The Tennessee Valley Authority said Nov. 12 that it has discontinued the manufacture of concentrated superphosphate containing 48% plant nutrient, and is engaged in perfecting a process for the manufacture of superphosphate of a higher concentration.

Experimental production has already started on a high-analysis superphosphate containing about 54% plant nutrient. This has been made possible through development by TVA of a superphosphoric acid, 40% more concentrated than acid ordinarily used to make concentrated superphosphate, TVA said.

United Heckathorn Opening $½ Million Pesticide Plant

RICHMOND, CAL.—United Heckathorn Co. of Richmond is opening its first agricultural chemical manufacturing plant at Magna, near Salt Lake City, Utah.

Throughout its 11-year history this company has devoted itself heretofore only to the formulation of a complete line of chemicals, sold under the "United" brand, as well as to a dusting and spraying service by agricultural aircraft.

The half million dollar plant, which went into partial production during October, will manufacture synthetic cryolite insecticides. The plant was producing only about ten tons a day during October, but the output will

(Turn to UNITED HECKATHORN, page 8)

Processing Economics Provides Keynote for Fertilizer Round Table

By LAWRENCE A. LONG
Editor of Croplife

WASHINGTON—After having discussed nearly a dozen questions concerning the economics of preventive maintenance on the first day of the Fertilizer Industry Round Table (Croplife, Nov. 10, page 1) the group continued its deliberations on Nov. 6 and 7 at the Mayflower Hotel here. General chairman of the round table was Dr. Vincent Sauchelli, chemical technologist of the National Plant Food Institute.

Thursday's session covered the general topic of economics of processing, with a total of seventeen questions on the agenda for discussion. Speakers presented prepared papers then replied to questions from the floor to shed more light on specific points.

Keynoting the day's agenda was a talk by George F. Sachsel, Battelle Memorial Institute, Columbus, Ohio, who outlined the principles of processing economics. He said that processing means change, either physical or chemical or both, resulting in products differing in properties and appearance from the raw materials. For the purpose of being specific, Mr. Sachsel said that the items being considered include labor, utilities, supplies and capital as chief elements in processing costs.

The elements mentioned comprise only about 5% of the total cost in a conventional fertilizer plant, he said, but at the same time they are important beyond their apparent magnitude. Processing costs are likely to become larger in the future, he said, and added that unlike adjusting raw material purchases to sales, many of the elements of processing cost cannot be adjusted as easily. "Depreciation, property taxes, interest and insurance continue unabated whether the plant is producing or not," he said.

Mr. Sachsel remarked also that it is no longer feasible to hire and fire labor in exact proportion to sales or output, partly because of our changing social attitude and partly because modern processing often dictates the same labor requirement for a plant whether it operates at 50% or 100% of design capacity. In some cases, maintenance expenses may actually increase with decreasing output, he said.

Referring again to the principles involved in processing economics, the speaker said that any processing operation should yield a return on investment that is at least commensurate with the risk involved. Among the forces determining the extent of this risk are bankers and other money-lenders who provide capital. If interest on mortgages runs 5%, equity capital must be promised a greater return on dividends or a promise of capital gain, he said.

The way to apply such a general principle to the many steps and problems in a plant, the speaker advised, is to subject each operation to the economic magnifying glass and appraise changes in terms of capital need, power consumption, labor requirements for operation and maintenance and maintenance material requirements. Methods for doing this, he said, have been widely published in textbooks and in articles in recent years.

A question regarding equipment for preventing material from setting up on the interior of a cyclone-type dust

(Turn to ROUND TABLE, page 20)

Baltimore Port to Permit Free Movement Of Fertilizer Grade Ammonium Nitrate

BALTIMORE—The city of Baltimore will allow fertilizer grade ammonium nitrate to move freely through its port. That's the gist of an ordinance compromise brought out at a special hearing here Nov. 10.

The compromise brought to an end weeks of bickering between those who wanted stringent regulations put into effect and those who wanted none. Looking for tightest laws were representatives of labor and some of the city officials. On the other side of the fence were those representing industry, shipping, and railroads.

A special committee was set up in September to study the ammonium nitrate situation. For the Harbor, Wharves, and Docks Committee of the City Council, the special study group came up with what it called "a liberal but firm set of laws."

Observers predict the compromise will pass the City Council easily in a few days. It was given spot and hearty endorsement by councilmen present at the hearing.

In effect the revised ordinance rewrites the nitrate section of the Baltimore city code.

On the list of non-dangerous materials which require no permit are ammonium nitrate-carbonate mixtures (up to 60% AN), nitrogen solutions, mixed fertilizers (up to 60% AN), ammonium nitrate-calcium nitrate mixture (50% each), ammonium-nitrate-sulfate mixtures (up to 40% AN, 60% sulfate), and ammonium nitrate-phosphate fertilizers (up to 60% AN).

Commercial ammonium nitrate as such still requires a permit for loading and unloading. That is also the case with obviously dangerous nitrates. Ammonium nitrate will remain on the books as a "dangerous material." However, no mention is made of the word "explosive"—a term bitterly fought by industry—and embraced by labor factions hopeful of hazard pay.

Also modified were quantity restrictions, stowage laws and permit procedures.

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Armour Plant Opens

OWOSSO, MICH.—Operations are starting at the new Armour & Co. fertilizer plant near here, the company has announced. When it reaches full operation next year, the plant will employ between 75 and 100 persons. First shipment of plant foods in bags will be made in January.

BIG BUSINESS IN WILD BLUE YONDER

Airplane Joins Tractor and Plow as Modern Farming Tool

FRESNO, CAL.—In recent years, the airplane has taken a place beside the plow and tractor as an important tool in modern farming.

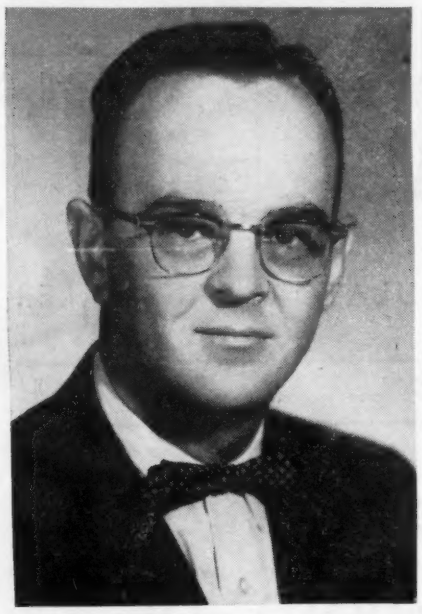
The agricultural aircraft has become increasingly necessary for seeding, fertilizing and pest control. More than five and a half million acres of farm lands will be treated from the air this year compared to slightly more than half a million acres 10 years ago, according to estimates by crop duster research men. As new chemicals go on the market and more uses are found for old ones, the agricultural aircraft industry will increase even more.

The San Joaquin and Sacramento valleys in California are headquarters for several crop dusting companies. Bakersfield is the home of the Atwood Crop Dusters, operating 40 planes with 20 pilots in an area roughly north to Lodi and south along the coast to Santa Maria. It is

(Turn to AIRPLANE, page 21)

FERTILIZER SOLUTIONS GROUP NOW MEETING

CINCINNATI—A report on how farmers accept new ideas and a "Planning for Profits" session will be featured at the annual meeting of the National Fertilizer Solutions Assn., which is being held here Nov. 16-18. George M. Beale and Joseph Bohlen, Iowa State College, will give a presentation on farmer acceptance of new ideas, and the panel on profits will include industry leaders talking about such fields as inventory control, production equipment, application equipment and standardization.



Robert Billings

SALESMAN — Potash Company of America announces the appointment of Robert Billings as sales representative for the states of Iowa, South Dakota, Nebraska, Kansas, Oklahoma and Colorado. Mr. Billings, although living in Ames, Iowa, will work out of and under the supervision of their Peoria, Ill., office. A graduate of the Missouri School of Mines, Mr. Billings spent the past ten years as a mine and safety engineer at their Carlsbad plant.

"There's No Place Like Home" for Gopher Who Starves Before Leaving Habitat

FT. COLLINS, COLO.—When 2,4-D was used recently to remove weeds on rangeland, not only were the weeds removed, but 87% of the pocket gopher population was destroyed. Apparently removal of the weeds cut off the gophers' principal food supply and rather than migrate, they starved to death.

Use of the chemical immediately appeared as an economical pocket gopher control method and scientists soon began to wonder how other rodents such as field mice, chipmunks and ground squirrels will respond when 2,4-D makes similar changes in their food supply. Do other rodents move, change their diet, increase or decrease or what does happen?

Work on the answer to just such questions is now in progress under terms of a $34,100 grant by the National Science Foundation to the Colorado State University Research Foundation.

Dr. Richard M. Hansen, CSU experiment station assistant biologist, is in charge of the research project. Work will be done on plots in National Forest rangelands. Close cooperation will be afforded by the Forest Service which will do the spraying.

The experiment will start with a population count of rodents in an area before spraying. Following application of 2,4-D, rodents will be trapped regularly. Data obtained from the rodents is expected to provide information on the effects of 2,4-D. For comparison, similar nearby areas will be left unsprayed.

Dr. Hansen says results will be helpful in developing sound land management practices. The project is expected to provide opportunities for participating graduate students to obtain advanced graduate degrees in wildlife management.

Additional cooperation will come from the food habits laboratory of the Denver Wildlife Research Laboratory.

Ezra Benson to Speak At CCDA-NAC Meeting

NEW YORK—Ezra Taft Benson, secretary of agriculture, will be a speaker at the joint meeting of the Commercial Chemical Development Assn. and the National Agricultural Chemicals Assn. in Baltimore, Md., Nov. 20-21.

Making the announcement were Lea S. Hitchner and Carl Pacifico, program co-chairmen. The meeting theme will be "New Chemicals for Agriculture."

The program will start on Thursday, Nov. 20, at the Lord Baltimore Hotel in Baltimore. The morning session will feature a panel discussion composed of Dr. R. H. Wellman, Union Carbide Chemicals, speaking on new growth regulators; Dr. K. C. Barrons, Dow Chemical Co., speaking on new herbicides; and Dr. E. M. Swisher, Rohm & Haas Co., speaking on new fungicides.

Luncheon speaker on Nov. 20, will be Dr. R. Blackwell Smith, Jr., president, medical college, University of Virginia, and chairman, subcommittee on toxicology, committee on food protection of the National Research Council.

Other panel meetings will be held on Nov. 20. The panel topics and leaders are:

- **New Insecticides:** Dr. George R. Ferguson, president, Geigy Agricultural Chemicals, division of Geigy Chemical Corp.
- **New Animal Health Products:** Dr. Robert W. Wolfgang, parasitologist, Hess and Clark, Inc.
- **New Animal Feed Supplements:** Dr. John H. Hare, head of the development department, agricultural research and development, Chas. Pfizer & Co., Inc.

The afternoon session will be followed by a social hour and dinner. Dinner speakers Jack V. Vernon, president, NAC, and L. E. Johnson, president, CCDA, will discuss "Agricultural Chemical Development."

On Nov. 21, the meeting scene will move to the USDA research center at Beltsville, Md. The panel meeting in the morning will be devoted to "Research Programs of U.S. Department of Agriculture Leading to New Chemicals for Agriculture." Seven scientists from the Agricultural Research Service will participate. Dr. H. L. Haller, assistant to the administrator, ARS, will be chairman.

Secretary Benson will then address the group.

Finishing up the meeting are demonstrations and a tour of the Beltsville research facilities.

New Method of Seed Treatment Described For Cotton Seeds

WASHINGTON—Cotton seedlings can be saved from soil-borne fungi by effective soil treatment at planting, according to the U.S. Department of Agriculture. Mixing fungicides well in the furrow—around and over the seed—walls out attacking pathogens and gives seedlings an escape to the surface, it is stated.

USDA cooperated with the Texas Agricultural Experiment Station in developing placement and mixing methods that cut losses sharply and improved stands more than two-thirds. Effectiveness of the treatment is increased also by another planting practice—thinner spacing of seed to make it harder for fungi to spread along a row.

The method field-tested in Texas treats a band from the seed zone to the soil surface—rising from a base three eighths of an inch wide to 2 in. at the top. The furrow's top layer also gets a thorough fungicide dose to protect emerging seedlings. C. D. Ranney, ARS plant pathologist, working with A. M. Hillis, of a commercial chemical company, found that planting equipment can be adapted to give the band needed coverage.

First of all, they report, the planter is equipped with V-wings wide enough to control the flow of soil past the furrow opener. Next, a runner-type opener is used if practicable. It firms the furrow walls and allows covering devices to crumble only treated soil into the furrow. A narrow-bottomed opener on the planter keeps the seed from shifting from the middle of the area treated. Fungicide is applied both ahead and behind a seed firming wheel when such a device is used.

Louisiana Firm Drops Washington Outlets

ST. JOHN, WASH.—West Coast Chemical Enterprises, Inc., Shreveport, La., owners of the Palouse Ammonia and Columbia Farm Supply farm chemicals outlets throughout the eastern Washington area, has retired from the fertilizer field in the Pacific Northwest.

The Louisiana firm has operated the farm chemical outlets under a contract with Phillips Petroleum Co., owner, and the stations are now being operated directly by Phillips.

Phillips' future plans for operation of the plants have not been announced, but the company may lease some of the outlets to private operators, it was learned.

Bob Zorb, local manager for Palouse Ammonia, said that he is now employed by Phillips but that he had no information on what the firm intends to do with the former Palouse Ammonia stations.

Named General Manager

PHOENIX, ARIZ.—Royce Richardson has been named general manager of Valley Agro-Chemical and Valley Feed & Seed Companies, Phoenix, Ariz. He has been with the companies for 10 years and was formerly manager of the feed department.

HAND SPREADING—County agent Ed McMinn demonstrates to farm woodlot owner, Paul Palmer and sons Russell and Aubrey, the correct technique of hand spreading fertilizer to a 20 year old stand of Douglas fir trees.

NPFI, Farmer Attempt "Fertile Acre" Plan On Forest Tree Farm

PORT LUDLOW, WASH.—One of the big question marks in any farm woodlot program is the possible need of fertilizer to augment a definite program of tree management. Unlike farm crops, definite recommendations are not forthcoming because research on forest fertilization has been quite limited. While interest in forest tree fertility research has increased markedly during the last few years, specific needs of the tree for nitrogen, phosphate, potash and other elements are not available to the average woodlot owner.

Some of these woodlot owners, such as Paul Palmer at Port Ludlow, indicated a willingness to go ahead on a small scale fertilization program. Mr. Palmer had been thinning and pruning his 20-year-old stand of Douglas fir under the auspices of the agricultural conservation program with technical help from local extension and Soil Conservation Service personnel.

At the suggestion of Todd Tremblay, northwest regional director of the National Plant Food Institute, an acre was set aside on Mr. Palmer's tree farm to receive 160 lb. and 80 lb. P_2O_5 an acre to demonstrate the possible need of a high fertility program in conjunction with modern forestry management techniques. Ed McMinn, county agent, with help from Ken Johnson, local S.C.S. technician, and agronomists Merle Switzer and Dale Massey, applied the necessary commercial fertilizer to one acre of Mr. Palmer's tree farm. Follow up growth measurements will be made on the trees to demonstrate the possible need for plant food to increase the productivity of the farm woodlot.

The NPFI in the northwest is interested in encouraging farm woodlot owners to set out a "fertile acre" plot where they are following modern forestry management techniques in cooperation with qualified state or federal personnel.

Elected Vice President

At a recent meeting of shareholders of Potash Company of America, Ltd., John W. Hall was elected a vice president and a director. Mr. Hall will also continue as the vice president of sales, a member of the board of directors, and a member of the executive committee of the parent company, Potash Company of America.

TEXAS FARMER STARTS TREND: HIRES HIS OWN ENTOMOLOGIST

BROWNFIELD, TEXAS—A new trend in controlling insects was started here when a local farmer hired his own entomologist. Monroe Rowden paid an entomologist $1.50 an acre to make periodic inspections of the cotton field and tell him when to apply toxicants and the kind of insecticide to use. The entomologist had Mr. Rowden spray the field at least a couple of times more than neighbors thought necessary. But it paid off in increased yields. Mr. Rowden made almost three bales to the acre, which was over a bale more than the community average. One advantage in hiring an entomologist, says Mr. Rowden, is the fact he will be there on the job in plenty of time. Too often the county agricultural agent may have 20 farms to inspect and the insects will get a head start, he said.

Calcium Cyanamid Tests Show Promise for Increased Effectiveness

SAN FRANCISCO—A new method of incorporating calcium cyanamid into soil shows great promise of increasing the chemical's effectiveness in controlling annual weeds, according to two University of California scientists.

Garland E. May, University farm advisor in Stanislaus County, and William A. Harvey, weed control specialist at the University, reported that control of annual weeds reached 79% in 1957 and 81% in 1956 in exploratory plots by using a power hoe mulcher to apply the calcium cyanamid. Winter crops of spinach and mustard greens were grown on the plots.

In December, 1955, cyanamid was applied to an experimental plot in 18 in. bands, in beds 36 in. center to center. The chemical was applied at the rate of 2,000 lb. an acre so 1,000 lb. an acre were actually applied. A power hoe was used to work the compound into the top 2-3 in. of soil.

The following year, cyanamid was applied in two 6 in. bands per 36 in. bed at the rate of 1,800 lb., using 600 lb. per acre. The power hoe mulcher incorporated the chemical into the soil. Weed counts made in four replications showed a range of from 25 to 44 weeds in the checks and from none to 10 weeds in the treated plots —an 81% control.

In 1957, the experiment was repeated, but the calcium cyanamid actually applied was reduced from 600 lb. to 535 lb. per acre. Weed counts made when the spinach was nearly an inch high showed 79% of the weeds controlled, and the spinach yield samples at cutting time showed an increase of 23% for the treated over the untreated plots.

In the process, the applicator and mulching units were mounted on the same tractor, making the treatment a single cultural operation. The mulcher was set to a depth of 2-3 in. because, according to Mr. Harvey, "at a greater depth the dilution of cyanamid with the soil reduces the effectiveness of calcium cyanamid for weed control."

In moist, sandy loam soils, planting was started eight to 10 days after treatment, but in heavier soils a waiting period of two weeks after irrigation or rainfall was found necessary. Mr. Harvey stressed the point that adequate soil moisture, supplied by irrigation or rain, is required within two days after application to activate the cyanamid and permit its breakdown products to reach maximum toxic quantities necessary for weed control.

Since cyanamid contains 21% nitrogen, the cost of the treatment, $25 to $30 per acre for material, was divided between nitrogen fertilizer and weed control.

Agronomy Award Planned

COLLEGE PARK, MD. — A new agronomy student scholarship has been established in the agronomy department of the University of Maryland College of Agriculture, Dr. Robert E. Wagner, head of the department, has announced.

To be known as the "Agronomy Achievement Award," it will be presented to the "outstanding junior or senior student in agronomy." The award is sponsored by the National Plant Food Institute.

Winner of the scholarship will receive $200 in cash along with an engraved key bearing the Institute seal, the name of the university, and the date of presentation. The Institute will also provide a plaque for displaying a permanent record of yearly winners of the scholarship.

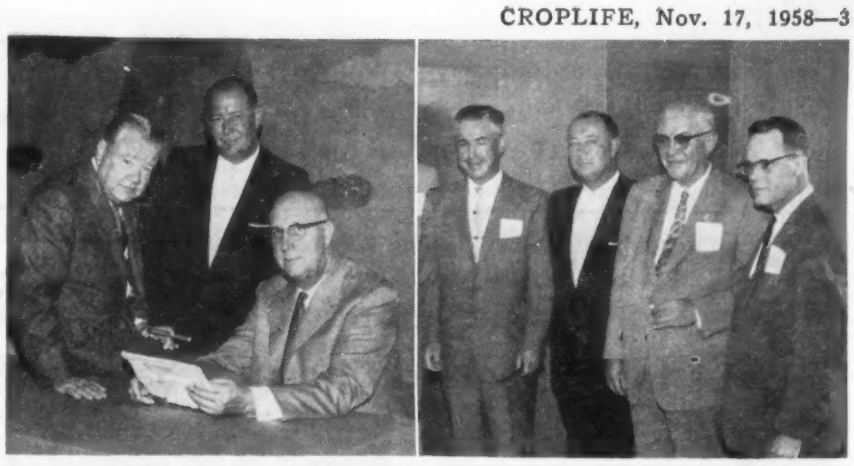
Selection of the recipient of the award will be made on the basis of scholarship, leadership and character by a committee of agronomy department faculty and agronomy club representatives. First presentation of the award will be made next spring.

Frank B. Walker to Stauffer Latin American Sales Post

NEW YORK — Frank B. Walker has been appointed sales development manager, Latin America, by the international division, Stauffer Chemical Co. Mr. Walker, who prior to his promotion was a technical representative of Stauffer's agricultural chemicals division stationed in New Orleans, will be headquartered in Sao Paulo, Brazil.

In his new position, Mr. Walker's primary responsibility will be the further development of Latin American markets for Stauffer's proprietary agricultural chemicals.

Mr. Walker joined Stauffer in 1953. He holds a bachelor's degree from Georgetown University in foreign service and completed special postgraduation studies at that university in international trade and commerce. He also is an engineering graduate of the University of San Francisco and Gonzaga University.



AT WESTERN AGCHEM MEETING—The Western Agricultural Chemicals Assn. named new officers at its annual meeting Oct. 15, at San Mateo, Cal. (Croplife, Oct. 20, page 1) Pictured at left, above, are WACA officers: Ivor Burden, United Heckathorn, Richmond, Cal. (center), president; Jack White, Phoenix, Ariz., vice president (left); and C. O. Barnard, San Jose, Cal., secretary. In photo at right are speakers appearing on the program. Left to right, they are: Dr. Irvin Hall, University of California; Mr. Burden; W. C. Jacobsen, California State Department of Agriculture; and Dr. James M. Merritt, Merck & Co., Rahway, N.J.

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The Week in WASHINGTON

By JOHN CIPPERLY, Croplife Washington Correspondent

Higher Corn Price Supports Seen as Trigger for Expanded Chemical Sales

WASHINGTON — Although the U.S. Department of Agriculture says in its November Demand and Price Situation Report that "some reduction in realized net income appears to be in prospect" for farmers in 1959, this report must be diagnosed by crops and areas.

The worst aspects of this report as far as farm income is concerned involve, first, increased taxes, interest rates and wages for farm labor. Decline in farm income is associated with a forecast of lower hog and wheat prices for the coming crop year.

On the other hand there is a net gain in gross farm income which results from field crop price support levels to the extent that such federal government programs aid farm prices.

Primarily it is now expected, according to the official USDA report, that U.S. farm output would be "as large as in 1958 even if weather conditions are no better than average. Yields per acre may not average much lower because of improving conditions in crop technology."

Broadly expanded acreage allotments for cotton for the 1959 crop year to 16 million plus acres should produce a broader demand for fertilizer and pesticidal chemicals.

Another aspect of the USDA report not fully disclosed is that the national corn crop price support level will be substantially higher next year, which would promote and induce a buying attitude of corn farmers to use a more adequate mix of fertilizer ingredients in that crop.

For example, nationally if the corn acreage allotment referendum is defeated on Nov. 25, 85% of the corn produced next year will be supported at substantially higher price levels than this year.

In the commercial corn belt the price support for all corn will be approximately $1.14 bu. as compared with the low level of support for 85% of this area corn crop this year at $1.06 bu.

In the non-commercial corn belt next year under conditions noted above, the price support level for corn will be $1.14 bu. against not more than $1.03 in 1958.

The new corn price support program is an incentive for the old non-commercial corn belt to step up its production of corn as a feed grain. This condition conforms to the attitude of the current USDA administration which has been trying to influence the trend of agriculture in the Southeast into livestock, rather than cotton, as a basic crop.

One former prominent USDA official told Croplife last week that the new corn program will produce a four billion bushel crop, weather permitting. This would indicate that this judgment says that the corn belt farmers and the old non-commercial corn belt will go all out for top production.

Similar conditions probably will apply for grain sorghums. It is likely that there will be no major change in wheat allotment acreage for next year by legislative action of the 86th Congress. This should mean that wheat farmers will probably use sorghums as their alternative crop in cut-off wheat land.

Next year should be a good year for the chemical industry in all the farm land which can grow corn. It should be a golden opportunity for the fertilizer industry to lead the way for the Southeast to divert from a one commodity community into a diversified farm economy to sustain the probable growth of livestock and poultry.

Monsieur, la Brigitte Bardot est bonne mais Croplife F-PPE est magnifique!

Smith-Douglass Net Sales Show Increase

NORFOLK, VA. — Net sales of Smith-Douglass Co., Inc. and its wholly-owned subsidiary, Texas City Chemicals, Inc. for the fiscal year ended last July 31 totaled $39,887,737, compared with $37,580,716 the previous fiscal year, according to the firm's annual report. Net income in 1957-58 amounted to $1,475,080, compared with $1,519,128 in the previous period.

Ralph B. Douglass, chairman, and W. R. Ashburn, president, said in a statement to stockholders that, despite adverse weather conditions and price instability in some markets, total fertilizer mixed goods tonnage and dollar sales exceeded those of the prior year.

The company spent $1,982,763 on plant and equipment additions during 1957-58. Included were expenditures for a liquid fertilizer plant at Albert Lea, Minn. and additional packaging and loading facilities at Albert Lea and at Streator, Ill.

New Laboratory

CHICAGO—A new chemical laboratory, Chemlab, Inc., under the direction of Dr. Bernard Wolnak, has been organized with offices and laboratory at 11535 W. Franklin Ave., Franklin Park, Ill. The firm will offer consulting and contract research, new product development, process improvement and development and technical services to all types of industry.

ALLIED CHEMIST DIES

CLEVELAND — Edward A. Sikorski, 57, chief chemist of the General Chemical Division of the Allied Chemical Corp., died of a heart attack here Oct. 29. His connection with General Chemical began in 1926, soon after his graduation from Middlebury College, Middlebury, Vt. Mr. Sikorski had worked among units at Wilmington, Del., Edgewater, N.J., and Buffalo. He had been at the Cleveland plant since 1937.

Spokane Fertilizer Plant In Move to Canada

SPOKANE, WASH.—The $350,000 Columbia Gypsum fertilizer plant at Greenacres, Spokane, is being dismantled and moved to Calgary and Vancouver, B.C.

Columbia Gypsum Products, Inc., Spokane, which built the plant in 1950, sold out to Columbia Gypsum, Ltd., of Vancouver in 1954 and that firm was purchased by Western Gypsum, Ltd., of Calgary last year.

Western Gypsum, a subsidiary of British Plasterboard, Ltd., has a fertilizer plant in Calgary and Vancouver. Production of agricultural gypsum and lime was halted at the Greenacres plant recently. The lime rock came from the Northport area and the gypsum rock from Windermere, B.C.

Californians Complete Harvest, Start Anew

SACRAMENTO—After one of the warmest Octobers in California's history, Sacramento Valley farmers generally welcomed the lack of rainfall and made use of the opportunity to complete their harvests and prepare fields for new crops.

In the rangeland areas along the slopes of both sides of the valley, ranchers continued to hope for rain which will give a start to winter feed. They did not face immediate drouth problems since there is considerable dry feed left.

Grain and rice growers were nearing the end of their harvests and sugar beet digging was being rushed at all valley points. Because of the continuing dry weather all were ahead of schedule.

The California Crop and Livestock Reporting Service said scattered offseason blooming of prunes, pears and a few apples was causing concern to growers in the Santa Clara area and Napa and Sonoma counties.

In Nevada, most areas were reported to have good fall and winter rangeland prospects. Dry weather prevailed in that state also but pastures, meadows and stubble fields afford sufficient fall feed.

Nevada livestock came in from summer ranges in good condition but some lambs were lighter than usual.

Harvest of farm commodities generally was completed with the exception of cotton, potatoes and silage.

Three New Officers At Escambia Chemical

NEW YORK—Three new officers have been named by Escambia Chemical Corp., R. U. Haslanger, president, announced.

The new officers are John B. Clopton, vice president and director of sales; Albert E. New, vice president and director of production, and Dr. W. Mayo Smith, vice president and director of research.

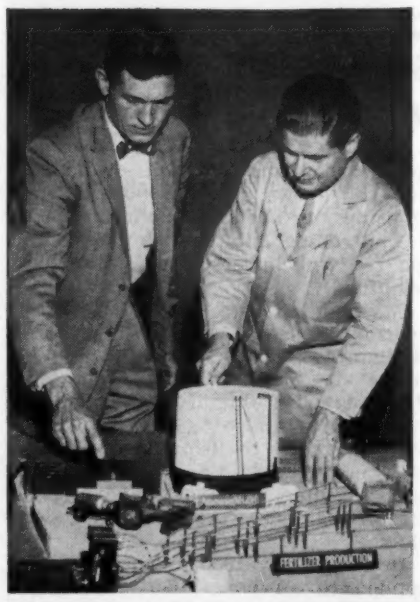
Mr. Clopton, who was appointed director of sales in April, will continue through the New York office to direct sales of the company's products, including ammonia, nitric acid, ammonium nitrate solutions, methanol and polyvinyl chloride resins.

Mr. New, who has served as technical director in the manufacturing division since coming to Escambia in June, 1956, will have charge of the company's three plants near Pensacola, Fla.

Dr. Smith, who has been with the company since it was organized in 1954, was named director of research early in 1958 and is now located at Escambia's recently opened research center in Wilton, Conn.

JOINS SALES FORCE

OAKESDALE, WASH.—L. L. Hagen has joined the sales force of Babb Bros., Oakesdale, Wash., a fertilizer firm.



TV SHOW — Dr. Richard Bahme (left) NPFI western regional director, and Dr. Earl S. Herald, "Science in Action" TV program host, discuss the role fertilizer plays in improving farming efficiency in a scene from "Our Hungry Soil." The half-hour show was prepared with the cooperation of the National Plant Food Institute and produced in Station KRON-TV, San Francisco. Dr. Bahme was a guest on the show.

American Potash & Chemical Announces 3rd Quarter Sales

LOS ANGELES — Consolidated sales of American Potash & Chemical Corp. for the nine months ended Sept. 30, 1958, totaled $35,619,683 compared with $32,646,615 for the same period a year ago, announced Peter Colefax, president, in an interim report to shareholders. The 1957 volume excludes the sales of Lindsay Chemical Co. which was merged with American Potash this year.

Consolidated net income for the first nine months of 1958 amounted to $3,155,395, equal after preferred dividends to $1.32 per share on 2,270,802 shares of common stock outstanding. Net income for the same period a year ago was $3,556,502 equal after preferred dividends to $1.78 per share on the 1,907,591 Class A and common shares then outstanding.

Washington State College Publishes Handbook

PULLMAN, WASH.—"Agricultural Chemicals Handbook," a 96 page publication, has been issued by Washington State College here. It contains sections on legal aspects of agricultural chemicals, pesticides and public health, materials and application equipment.

Purpose of the book, according to H. S. Telford, chairman of the Washington State College Department of Entomology, is to condense and compile information on agricultural chemicals in handy form for technicians, field men, county agents, pest control license applicants and commercial operators.

Copies of the publication may be obtained for $1 from the Student Book Corp., State College of Washington, Pullman, Wash. There is a 3¢ sales tax for Washington residents.

Insect Conference

CHICAGO—State and federal entomologists from the insecticide industry, fertilizer concerns and manufacturing interests are expected to attend the Midwestern Conference on Control of Soil Insects Attacking Corn, to be held at the LaSalle Hotel here, Nov. 20.

Included in the program will be a review of research findings by participants and preparation of regional recommendations for the control of the corn insects.

Applications for Conservation Reserve Contracts Exceed Goals

WASHINGTON—The U.S. Department of Agriculture has reported that farmers have filed applications for 1959 contracts in the Conservation Reserve of the Soil Bank which offer acreage exceeding the goals for the program in most states, and nationally. The final date for applications was Oct. 24.

For the country as a whole, the 232,000 filed applications for contracts would call for putting more than 20 million acres in the Reserve under contracts beginning next year. The national goal for the 1959 signup was 12.5 million acres.

If all farmers who filed applications were offered contracts by the county agricultural stabilization and conservation committees, first-year practice and annual payments would require more than the $285 million available for payments next year on new contracts. The rest of the $375-million total authorized by the Congress will be needed to make annual payments under contracts signed in previous years.

Because the authorized program for 1959 is not sufficient to permit offering contracts to all applicants, it will be necessary in most states to follow a priority system in determining which applicants are offered contracts.

Nematology Workshop Planned for January

PORTLAND, ORE. — A two-day workshop to acquaint Pacific Northwest farmers, growers, and nurserymen with the latest methods of controlling nematodes will be held in Portland Jan. 27-28.

More than 300 persons are expected to attend the workshop which will be open to all persons in the field of agriculture concerned with the nematode problem. The workshop, first of its kind ever held in the Northwest, will be sponsored by Shell Chemical Corp. which has held similar Shell Nematology Workshops in the East, South and Southwest.

The program will include panel discussions by leading agricultural scientists from the U.S. Department of Agriculture, state agricultural bureaus, and the universities of Idaho, Oregon and Washington. Chairman of the workshop will be Dr. L. C. Glover, entomologist and senior district sales development representative of Shell's agricultural chemical sales division.

Illinois Farm Supply Closing Tuscola Plant

TUSCOLA, ILL.—The Illinois Farm Supply Co. granular fertilizer plant here is being closed, according to Welby Buchanan, East St. Louis, manager for the firm. He said the plant will be kept in condition to start up again later, but that no plans are set for resumption of operations.

The $1¼ million plant, erected four years ago, has been operating on a warehouse basis since last spring. Mr. Buchanan said that establishment of an improved production process at the firm's East St. Louis plant permitted the production of higher analysis fertilizers at that site.

INCOME INCREASES

PORTLAND, ORE.—Farm income in the three Pacific Northwest states was up by 14% in the first seven months of 1958 to a total of $614,470,000, the agriculture department reports. The figure compares with $537,800,000 received by Oregon, Washington and Idaho farmers in the like period of 1957. The increased return includes $322,456,000 from livestock and products and $292,014,000 from crops.

Fall Fertilization in Texas Area Doubles Year-Ago Mark

BROWNFIELD, TEXAS—Autumn and winter fertilization in this area is steadily increasing and will more than double the usage of a year ago. Farmers are putting down fertilizer when they flat break the fields after harvest. Both liquid and dry fertilizers are being used.

Several farmers are practicing a crop rotation that includes raising a heavy maize crop, shredding the stalks and then putting on from 30 to 40 lb. of actual nitrogen when the land is plowed.

This has two advantages, according to farmers and fertilizer dealers. It adds plant food for the coming crop, and the nitrogen speeds up the decomposition of the dry residues.

SMITH RETIRES FOUR

COLUMBUS, OHIO — Four employees of the Smith Agricultural Chemical Co. here retired recently. The four represented a total of some 145 years with the firm. They are Carl Overdorf, Tipton, Ind., 37 years; George H. Hoeflinger, Columbus, Ohio, 40 years; Ernest E. Eich, Galion, Ohio, 40 years; and Gordon Woodyard, Paris, Ill., 28 years.

USDA Economists See Sharp Increase in Farm Efficiency and Vertical Integration

AMES, IOWA—An increase in vertical integration and sharp increases in size and capital requirements of farms are foreseen by two economists from the U.S. Department of Agriculture.

The two economists are G. T. Barton, Agricultural Research Service, and Rex F. Daly, Agricultural Marketing Service. They were authors of a paper presented at a recent weeklong conference here on "Problems and Policies of American Agriculture." The conference was held at the Iowa State College Center for Agricultural Adjustment.

1975 Demands

The economists estimated 1975 demands for farm products on the basis of population of about 233 million persons. They predicted an increase in livestock production of about 45% to meet 1975 needs.

The 1975 production needs will be met "without any great difficulty," said Mr. Barton and Mr. Daly. They pointed out that this production would require no increase in acreage, would be done with one third fewer man-hours and with two million fewer farm workers than were employed in 1956-57. There will, they indicated, be a large increase in what they called "non-farm inputs," including such things as fertilizers, feeds and mechanization.

Fewer Farms

The economists speculated on some of the changes ahead for commercial farming. They said that the 3.1 million commercial farms of 1954 may shrink to about 2 million by 1975. In terms of size of farms, they look for a 50% increase in average commercial farm acreage. In terms of output and capital requirements of the commercial farm, they estimated that both in 1975 would be double the 1956-57 figures.

Growth in capital requirements and in the "non-farm inputs," they said, will make financing a major consideration. They declared their opinion is that financial needs, plus growing complexity of economic and technical phases of farming, will foster an increase in vertical integration.

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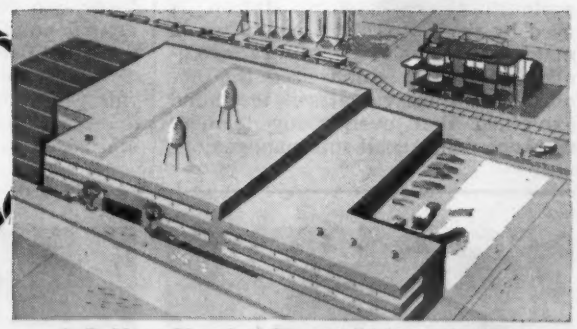
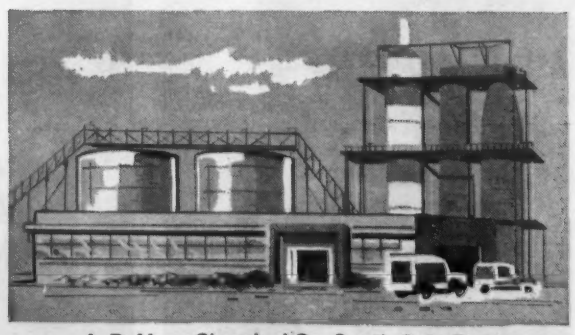


A. R. Maas Chemical Co. new Richmond plant.



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FIRST TRUCKLOAD—Showing the first truckload of samples to the soil testing division of the North Carolina Department of Agriculture, are (left to right), O. P. Owens, county agent; L. Y. Ballentine, commissioner of agriculture; and Dr. E. J. Kamprath, director of soil testing.

North Carolina Farmers View Soil Testing Laboratory Procedure

RALEIGH, N.C.—Just what happens to a soil sample from the time it leaves the farm until the farmer receives his soil test report?

This question was answered for several fertilizer dealers and farmers of Robeson County, N.C., who last month visited the state soil testing laboratory at Raleigh.

The trip to the laboratory was arranged by O. P. Owens, Robeson County agent, following a discussion with several local dealers during which he learned that many of the farmer-customers were completely unfamiliar with how their soil samples were handled and how individual recommendations were made.

Ten fertilizer dealers and three farmers made the trip to the laboratory. Dr. E. J. Kamprath showed them, step by step, how soil samples were handled.

Following the laboratory tour, the group visited the soils department at North Carolina State College where Dr. J. W. Fitts explained how research information developed by the agricultural experiment station is used by the soil testing laboratory in making lime and fertilizer recommendations. He emphasized the importance of individual soil tests and explained that even many farmers who are using good soil management practices could increase their profits by using more fertilizer.

Mr. Owens believes that the tour will be a big help to the intensified soil fertility program he has under way in Robeson County. Soil testing is being stressed in the program as a key to soil fertility improvement and the dealers and farmers who made the tour, having obtained a better understanding of the value of soil testing, are more enthusiastic supporters of the program.

"One fertilizer dealer stopped by my office and picked up some soil sampling supplies," said Mr. Owens. "He planned to have all his farmer-customers take representative soil samples of all their fields."

Mr. Owens estimates that if fertilizer and liming recommendations from the soil testing laboratory were to be followed by all Robeson County farmers, farm income in the county could be increased by $1 to $1½ million.

CORN SHOW SET

PORTLAND, ORE.—Oregon's increased interest in field corn production will turn the spotlight on growing, harvesting and feeding practices at this year's state corn show, reports Rex Warren, Oregon State College farm crops specialist. The 17th annual public show will be held Dec. 6 at the Benton County fairgrounds, Corvallis. Oregon field corn acreage this year hit a record high of 47,000 acres, compared to 36,000 last year and 25,000 acres in 1950.

Man Must Improve Wild Rangelands, Expert Asserts

REDDING, CAL.—Man can improve on nature in wild rangelands just as he has on his more easily tamed farm land, and he must do so to meet the food demands of an increasing worldwide population, a California range expert has asserted.

Speaking at the banquet of the Western Range Fertilization Conference here, Oct. 27, R. Merton Love, professor of agronomy at the University of California at Davis, said that man had assumed wrongly for hundreds of years that natural vegetation on ranges was best.

Man has not only been content with the range provided by nature, he has also believed the range "must be maintained in its natural state, whether it be in the range country of the U.S., in the pastoral areas of Australia, or the high country of New Zealand," Prof. Love said.

"Range improvement suffers in comparison with other crops in three ways," he said. "In range agriculture there is a smaller degree of success in overcoming the limitations of nature, research is many years behind that for other crops, and there is too often an unwillingness among both scientists and farmers to try to do anything about it."

In past thousands of years, Prof. Love said, man has developed the tools and knowledge necessary to grow bigger and better agricultural crops. But over the same thousands of years, he asserted, "on the rangelands and wildlands of the world there has been little change.

"Rangeland husbandry—the harvesting of the grassland crop by animals—must be regarded as a phase of agriculture if we are to make any progress in our last agricultural frontier."

As population pressure rises, and the livestock industry expands to meet food demands, the need to get the best possible forage yields becomes more and more pressing, Prof. Love said.

In this situation, he said, "it is urgent" that the agricultural scientist participate in research on range and wildland. The emphasis, he said, must be changed from "management to improvement."

"Grassland, natural or artificial, is a renewable resource," Prof. Love pointed out. "Facing the researcher is the problem of developing research programs that will insure not only the continuity but also the improvement of this resource."

Before full possibilities for range improvement can be realized, the professor maintained, researchers must develop detailed information on:

1. The response of range grass and legumes to environmental changes such as differences in fertility levels, and clipping and grazing treatments.
2. The nutrients that range species require.

With this information, Prof. Love said, "it should be possible to develop chemical tests for the nutrients required in different soils, so that a better grassland crop of legumes and grasses can be grown by the use of appropriate fertilizers."

On range, as in field crops, Prof. Love said, better fertilization means increased forage production, longer growing periods, and improved nutritional content of food.

The introduction of better adapted grasses and legumes raises the amount and quality of forage crops, and often permits the efficient use of higher soil productivity that fertilization makes possible, he concluded.

Texas Gulf Sulphur Company Reports 3rd Quarter Earnings

NEW YORK—Net earnings of Texas Gulf Sulphur Co., Inc. for the three months ended Sept. 30, 1958 amounted to $3,092,096, equivalent to 31¢ per share on the 10,020,000 common shares in the hands of stockholders, the company reported. This compares with net income of $2,765,656, or 28¢ a share, on the same number of shares for the corresponding 1957 period.

Gross revenue from sales for the third quarter of 1958 amounted to $14,037,715 as against $15,332,649 for the like period a year ago.

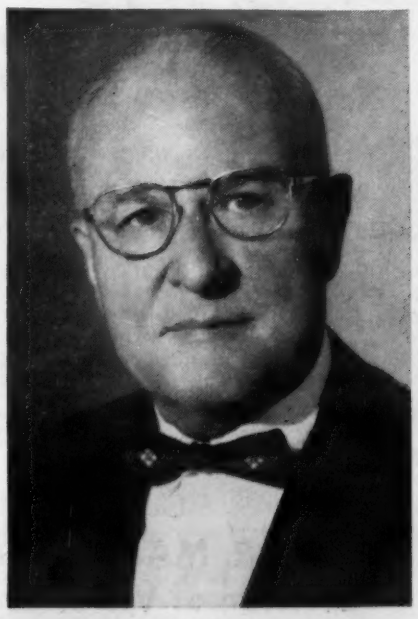
Net income for the nine months ended Sept. 30 was $10,024,917, equal to $1 per share, compared with $13,762,343, or $1.37 per share for the 1957 period. Gross revenue from sales for the latest nine-month period was $40,328,064, compared with $52,404,620 a year ago.

TO CONTINUE NUT CLUB

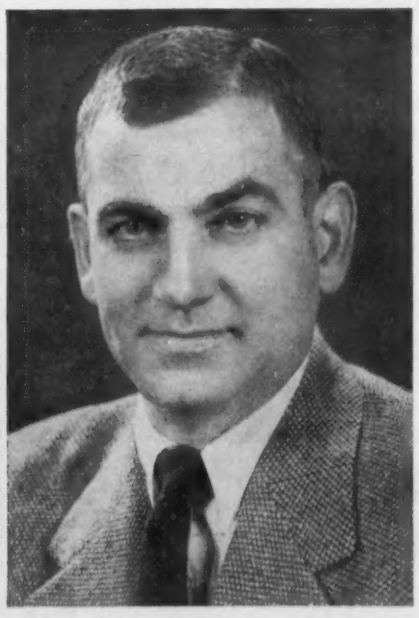
PORTLAND, ORE.—The "Ton Per Acre Nut Club," sponsored by the Nut Growers Society of Oregon and Washington, will be continued this year despite the fact that Oregon and Washington filbert crops are considerably lower than last year, reports Gordon Hull, Salem, the group's president. He points out that the nut group's program committee feels that the Ton Per Acre club's long-range benefits merit its continuation.

E. T. Collingsworth, Jr.

William R. Dixon



Frank M. Feffer, Sr.



Robert S. Thompson

NEW DIRECTORS—Four new members of the board of directors were elected by the National Agricultural Chemicals Assn. at the group's silver anniversary meeting held in Savannah, Ga., Oct. 29. Shown above, they are: Evan T. Collinsworth, Jr., president, Velsicol Chemical Corp., Chicago; William R. Dixon, general sales manager, The Dow Chemical Co., Midland, Mich.; Frank M. Feffer, Sr., president, Arizona Fertilizers, Inc., Phoenix, Ariz.; and Robert S. Thompson, president, Thompson-Hayward Chemical Co., Kansas City, Mo. Other business at the meeting found J. V. Vernon, president, Food Machinery & Chemical Corp., New York, being reelected NAC president. Other officers reelected were Charles H. Sommer, vice president, Monsanto Chemical Co., St. Louis, vice president; Lea S. Hitchner, executive secretary and treasurer; and Miss Lee H. Grobe, assistant treasurer.

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Oregon State Scientists Seek Soil Answers

CORVALLIS, ORE.—A search is underway at Oregon State College here to learn why some western Oregon soils tend to "lock up" reserve supplies of potassium while other soils make this important element readily available for crop production.

OSC agricultural experiment station soil scientists have started a three-year research project aimed at measuring "availability" of potassium, a key soil nutrient for forage and vegetable crop production in western Oregon.

Tests will be made on eight of the major soil types in western Oregon, ranging from the heavy rainfall area of Astoria to the drouthier red hills soils on the eastern edge of the Willamette Valley.

Hugh Gardner, OSC soils department research assistant, will conduct the trials, supported by a $2,600 annual grant from the American Potash Institute, OSC soil scientists T. L. Jackson and M. E. Harward will supervise the research.

Largest reserve of potassium in most soils is found in the soil minerals, particularly in the clay and silt parts of the soil, Mr. Gardner said. He added, however, that different kinds of clays and silts not only vary in their amounts of potassium but also in the proportion of potassium released to growing plants.

Earlier studies at the college indicate, for example, that soils may test high in readily available potassium but are slow to replace a ready supply once it is used up in plant production.

Knowledge of both the amount and rate of potassium released by soil minerals in a form available to plants could supply an important link for measuring soil fertility and the amount of potassium fertilizers needed, the scientists explain.

Soil samples will be leached with chemicals to measure potassium "release rate" and these laboratory findings will be checked against actual plant production on land where soil samples were gathered.

A long-range objective of the research is to learn if kinds of clay and silt minerals present in a soil sample can serve as indicators of how much and how fast potassium will be available to crops.

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Best Promotes Two

LATHROP, CAL.—Eugene L. Knickrehm has been named ammonia department head and Francis W. Johnson has been named assistant for ammonia in connection with Best Fertilizer Co.'s contract for construction and operation of a new California Ammonia Co. plant at Lathrop, Cal. Mr. Knickrehm, vice president of production for Best, was previously with Calumet Nitrogen Products Co., Spencer Chemical Co. and Grace Chemical Co. Mr. Johnson was previously with Carthage Hydrocol, Spencer Chemical Co., Grace Chemical Co. and Air Products Inc.

Kirk Sanders Tom Campbell

SPENCER APPOINTMENTS — Two changes in its southeast district agricultural sales organization have been announced by Spencer Chemical Co. Kirk Sanders, formerly manager of the southeast district which has its headquarters in Atlanta, has been put in charge of special projects for the district. Tom Campbell, formerly North Carolina sales representative, will become southeast district manager. According to Spencer, the administrative changes are intended to increase the company's over-all sales service effort in the Southeast. Mr. Sanders will continue to work out of the Atlanta office.

Crag Fly Repellent Gets Approval as Livestock Spray

NEW YORK—Crag Fly Repellent has been cleared by the U.S. Department of Agriculture as an ingredient for livestock spray formulations on a "no residue" basis, according to Union Carbide Chemicals Co., Division of Union Carbide Corp.

Dr. R. H. Wellman, manager, Crag Agricultural Chemicals, said the repellent can be used on both dairy and beef cattle. The clearance is based on extensive data submitted by the company.

"This means that the many formulators who have used Crag Fly Repellent in the past may continue to do so in the future, and may assume that their sprays will be acceptable for registration under the Federal Insecticide Act," Dr. Wellman stated.

Names New Treasurer

DORCHESTER, MASS. — Clayton F. English, executive vice president of Sturtevant Mill Co., Dorchester, was named to fill the post of treasurer of the corporation, vacated early last month by the death of Joseph L. Sturtevant. Mr. English will continue to serve as executive vice president. Mr. English joined Sturtevant in 1947, coming from a management post with the shipbuilding division of Bethlehem Steel Co. He became executive vice president in October, 1957.

Books on Soils and Soil Management

SOILS AND FERTILIZERS—Fourth Edition
Firman E. Bear
Covers in detail: soil chemicals, important soil elements such as nitrogen, phosphorus, calcium; yield prospects of crop plants, moisture control, soil management; mechanical operations; soil conservation; organic matter maintenance. New facts, accurate figures.
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C. E. Millar, Professor Emeritus of Soil Science, Michigan State College
A fundamental treatment of the principles of fertility in the soil, with major emphasis on the plant itself. Relevant aspects of soil chemistry, soil physics, soil microbiology and plant physiology from viewpoint of their influence on plant growth. Each major plant food element and the more important micro-nutrients fully treated with respect to supply in the soil, sources and amounts of additions, losses from the soil, functions in plant growth and plant symptoms of deficiency. Covers all sections, with considerable space to saline soils and soils of southern latitudes $6.75

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Firman E. Bear
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Dr. L. D. Baver, Director Experiment Station, Hawaiian Sugar Planters Association
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424 pages, illustrated $6.00

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Helmut Kohnke
A concise textbook dealing with basic concepts of soils. Much useful information for students in agriculture, farmers, fertilizer salesmen, etc.
68 pages, paper bound $1.00

IRRIGATED SOILS: Their Fertility and Management—New 1954—Second Edition
D. W. Thorne and H. B. Peterson, Department of Agronomy, Utah State Agricultural College. Dr. Thorne is also Chief of Soils and Fertilizer Research Branch, Tennessee Valley Authority
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W. B. Andrews
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UNITED HECKATHORN

(Continued from page 1)

be "greatly expanded" when in full production.

The site was selected by the company because it is immediately adjacent to one of its major sources of supply, Western Phosphates.

The plant occupies a site 400 by 400 feet. M. D. Riddle has been named manager, and formerly was chief chemist in Richmond in charge of all development. Mr. Riddle has been with United Heckathorn since the company was founded in 1947. Eighteen men are employed in the plant at the present time on three six-man 24-hour shifts.

In addition to these two plants, United Heckathorn operates processing units at Five Points, El Centro, and Blythe, Cal.; in Robbinsville, N.J.; and a seventh portable plant which is moved from place to place to formulate DDT, Aldrin and other chemicals.

Gene Heckathorn is president of the company and Ivor Burden executive vice president.

Special Merchandising Section

Better Selling

Marketing News and Features

Bankruptcy Fears Cause Profitable Dealer Switch

By Jess F. Blair
Croplife Special Writer

When the trend toward large feed mills and bulk delivery started a few years ago, Guy B. Anderson saw that his own business might be swept into bankruptcy. His Anderson's Feed & Seed Store, Ogden, Utah, had an uptown location, and buying a new site and erecting a large mill would cost a fortune.

Mr. Anderson had built a good business near the center of town, so he decided to add all types of items for the farmer and suburban dweller.

Farm chemicals were becoming important in the diversified farming area where several different types of crops and livestock were grown. It is also a region where small farms still predominate.

He is still in the feed business, but this is now only a part of the store's income. A great deal comes from insecticides, fertilizers, pest killers, garden and irrigation supplies, and dozens of other items that every farmer or orchardist needs.

Mr. Anderson also had a problem of providing room enough for all the extra merchandise. Since the ceiling was very high, he built a second floor seven feet high along three sides of the room and left the center open.

Now a customer can stand in the middle of the large room and see dozens of items displayed on this platform. Mr. Anderson usually puts items that will cause the customer to look upward. Some of them are parakeets, red cedar flower holders, pottery and other items that customers often buy on impulse.

"We've tried to make this a miniature department store," said Mr. Anderson, "but the trade is slanted toward the farmer."

One difference in the items sold is that Anderson's sells higher quality merchandise than department stores. The store does not try to compete with the big stores on prices, but takes a legitimate profit on every sale made.

"One advantage we have over the

(Turn to BANKRUPTCY FEARS, page 12)

Drouth Produces Company Changes; Results Pleasing

The Guthals Produce Co., Clovis, N.M., was for many years the type of business its name implies. A. E. Guthals was a produce man, buying cream and eggs from farmers in this predominantly agricultural area of eastern New Mexico. Then came the long drouth, starting nine years ago, which caused farmers to sell their milk cows and reduce poultry flocks.

It was then that Mr. Guthals decided to change with the times. He began to add farm items such as weed killers, fertilizers and garden supplies. Though he still buys some produce, the main part of his business is selling various farm supplies.

Since the changeover occurred, he has dressed up the store—adding attractive displays and making the place eye-pleasing and arranged for easy shopping.

Mr. Guthals' fertilizer sales have steadily improved, despite the searing drouth that did not ease up until this past summer. And while dryland crops have been spotted with low yields, this has been partly offset by

(Turn to COMPANY CHANGES, page 14)

MODERN DESIGN in building and fixtures, plus a practice of "Treating the customer as king" have paid off in profitable results for the Argilla & Boscacci Garden Supply Store in Redwood City, Cal.

'Treat Customer as King' Is Firm's Success Motto

"We treat the customer as king," stated Ken Boscacci in describing the success of the Argilla & Boscacci Garden Supply Store in Redwood City, Cal.

The firm, located at 560 El Camino Real, opened in 1947. Partners Ken Boscacci and Luke Argilla were high school athletic coaches who decided to find a more profitable occupation and settled on the idea of a garden supply store although they knew nothing about the business. Basing their operation on the philosophy described by Mr. Boscacci, the two soon learned and watched their infant enterprise grow into the present store now doing $200,000 in annual sales.

The high-ceiling store covers 5,000 sq. ft. of floor area and is illuminated by a series of fluorescent lights. In addition to the artificial lights, a great deal of natural lighting is admitted through the building's glass front which also enhances the mass displays of merchandise featured in the store. Chemicals are the primary products used in the mass displays which are set out in the spring. This display method, borrowed from supermarkets, "noticeably increases sales," said Mr. Boscacci.

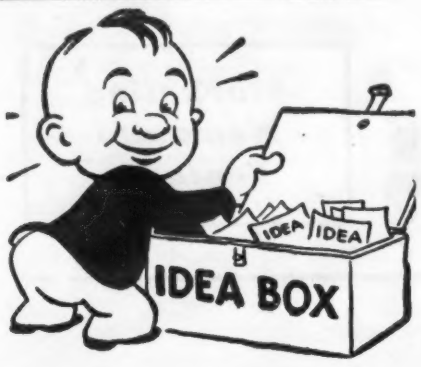
Another feature of the firm's promotion policy is "the question of the week." Monday mornings, the staff, consisting of the owners and two full time employees, meets to pick a question involving garden products. Each customer during that week is then asked the selected question. Depending upon the season the question

(Turn to CUSTOMER KING, page 14)

DISPLAYS receive a great deal of attention at the Argilla & Boscacci store in Redwood City, Cal. In this one, the 1958 Chlordane Contest is given a big play.

DISPLAYS are keyed to surrounding merchandise. Here the lawnmower setup is located in front of a section featuring flower and plant pots and boxes for home use.

DISPLAYS have played a large part in the growth of the Argilla & Boscacci store. The owners say the displays "noticeably increase sales." Here is a chemical outlay.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 7210—Exhibit Display

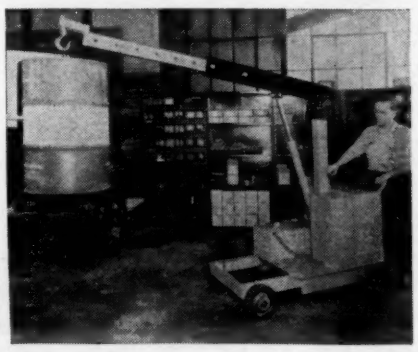
A lightweight 10 ft. exhibit display designed for easy assembly is now available from Federal Displays, Inc. The exhibit is packed in a shipping case 4 ft. by 8 ft. by 3 in. and weighs 110 lb. The unit can be assembled in 15 min. without tools, officials say. Check No. 7210 on the coupon and mail to this publication for more details.

No. 6827—Available Reprints

Reprints of a large number of publications on all phases of fertilizer, soils and crops are available from the American Potash Institute, Inc. The institute says the reprints can be obtained in moderate quantities as long as its supply lasts. For a list of available reprints, check No. 6827 on the coupon and mail it to this publication.

No. 7213—Mobile Floor Crane

The Vanguard Engineering Co. announces the Aero-Crane, a counterbalanced mobile floor crane having an adjustable boom with the hook reaching 48 in. beyond the front edge of the truck. The crane has a



10 ft. high reach and goes down to 1½ ft. from the floor. The running gear is of 10 in. diameter Timken bearing wheels for easy rolling, the company says. The unit is available in several models from 1,000 lb. to 3,000 lb. capacity. For more details check No. 7213 on the coupon and mail to this publication.

No. 6829—Cost Calculator

A pesticide and cost calculator has been introduced by the Pest-Cal Co. The company claims quick and accurate calculations for dosages of over 70 pesticides used in household, agricultural and weed control work. On one side of the circular chart insecticide formulations are divided into emulsifiable concentrates, wettable powders and solutions. When the calculator is rotated to the desired product, the dosage rate appears in a small window. On the reverse side a cost calculator figures finished spray cost. For information, check No. 6829 and mail.

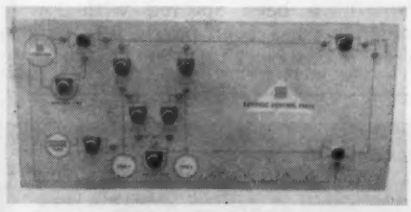
No. 6825—Truck Sprayer

The model 1,000 truck sprayer has been developed by Kaw Fertilizer Service, Inc. The pump kit allows the unit to be installed and operating in half a day, it is claimed. Features are: PTO-operated, 50 g.p.m. transfer, 33-ft. coverage, 1½-in. and stain-

less steel filter. The tank and booms are on skids and can be removed from the truck. The tank has a capacity of 1,000 gal. and is of 12-gauge metal. Check No. 6825 on the coupon and mail it.

No. 6826—Graphic Control Panel

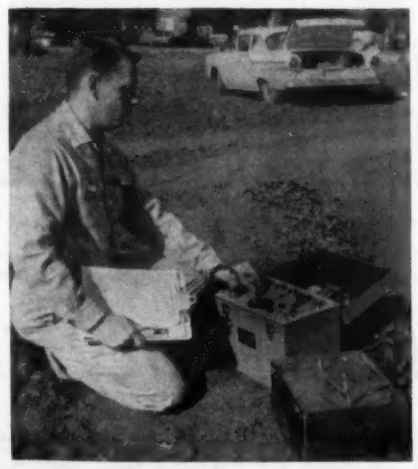
The Barnard & Leas Manufacturing Co., Inc., announces the addition of a graphic control panel as standard equipment on the B & L Autobatch and the B & L Autobatch Skid Plant line of liquid fertilizer equipment. The panel provides remote



control and operation of various components together with visual indication of the sequence involved, the company says. The routing of finished products and raw materials to and from storage and load-out is by means of electrical controls. Check No. 6826 on the coupon and mail for more complete information.

No. 6828—Soil Gauges

Two probes developed by Nuclear-Chicago Corp. permit rapid determination of moisture content and density on the surface level, the company says. The models P21 and P22 Surface Moisture and Surface Density Probes are the latest additions to the company's "d/M Gauge" system. The probes provide moisture and density measurements directly on the surface of the material eliminating the necessity of removing, weighing or destroying a sample of the material for testing, the company says. Complete details can be obtained by checking No. 6828 on the coupon and mailing to this publication.



Also Available

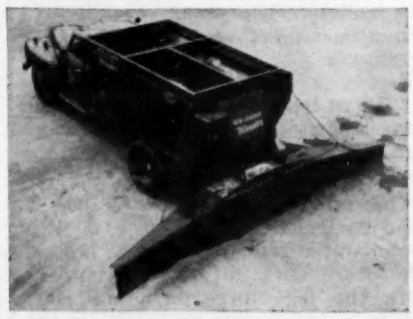
The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6812—Manufacturers' Handbook

A "Manufacturers' Handbook" which was designed as a technical reference text for students and teachers is now available from Nitroform Agricultural Chemicals. Charts on nitrification are included to aid in understanding of the chemical and agronomic properties of good ureaforms. Check No. 6812 on the coupon.

No. 6818—Mobile Blender

The Highway Equipment Co. announces the "New Leader L-42S Mobile" Blender. The unit will blend and spread three fertilizers at the



same time, the company says. The spreader operator can change the fertilizer ratio for varying soil conditions, as determined by soil tests, while in the field. Three separate feedgates, each with a test box for metering, control the amount of spread, the company says, and a 7 h.p. engine drives the distributor fan assembly at a constant rate, regardless of truck speed. For more details check No. 6818 on the coupon and mail to this publication.

No. 6820—Soil Conditioner Booklet

A booklet on "Dextran and Dextran Products as Soil-Conditioning Materials" has been prepared by the Commonwealth Engineering Company of Ohio. The illustrated publication contains data on dextran-treating experiments, plus tables, graphs and photographs of actual tests. For more details check No. 6820 on the coupon and mail to Croplife.

No. 7165—Bagging Scale Bulletin

The Richardson Scale Co. has published a bulletin describing its E-50 automatic bagging scale. The six-

Send me information on the items marked:

- ☐ No. 2053—New Bag Concept
- ☐ No. 6812—Manufacturers' Handbook
- ☐ No. 6816—Testing Machine
- ☐ No. 6817—Suspension Material
- ☐ No. 6818—Mobile Blender
- ☐ No. 6819—Boomless Fertilizer Sprayer
- ☐ No. 6820—Soil Booklet
- ☐ No. 6821—Fertilization Report
- ☐ No. 6822—Formulation Pad
- ☐ No. 6823—Engine Driven Pump
- ☐ No. 6825—Truck Sprayer
- ☐ No. 6826—Graphic Control Panel
- ☐ No. 6827—Available Reprints
- ☐ No. 6828—Soil Gauges
- ☐ No. 6829—Cost Calculator
- ☐ No. 7165—Scale Bulletin
- ☐ No. 7188—Modern Farming Film
- ☐ No. 7205—Spring Truck
- ☐ No. 7210—Exhibit Display
- ☐ No. 7213—Mobile Floor Crane
- ☐ No. 7229—Liquid Tote Tanks

(PLEASE PRINT OR TYPE)

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COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

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(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
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P. O. Box 67

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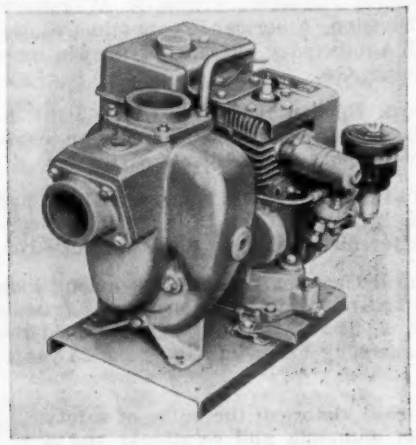
page, two-color bulletin, with illustrations and cut-away line drawings, details the E-50's design, capacities, gravity or power feed operation, and discharge. In addition, the bulletin contains engineering drawings, illustrations of suggested feeding arrangements and descriptions of accessories. Standard specifications and optional features are outlined, along with the E-50's ability to handle a variety of materials. A copy of the bulletin may be obtained by checking coupon No. 7165 and mailing to Croplife.

No. 6823—Engine Driven Pump

Marine Products Co. announces an engine driven pump of all-iron construction for application of liquid fertilizers. The unit, called Flomax 8, is designed to withstand the corrosive effect of pumping liquid fertilizers, the company says, and is entirely



self-contained with its own gasoline engine. The pump requires no power take-off connection and it is put into operation immediately after the piping connections are completed. For more complete details, check No. 6823 on the coupon and mail to this publication.

No. 7205—Spring Truck

The Everlevell Co. announces a new economical spring truck. The company says the truck eliminates operator's fatigue by maintaining constant working level. A change of 3 lb. will readjust the platform to proper working height of about 29 in. from floor level. The truck handles up to 500 lb. and can be constructed to different weight requirements. Units can be custom manufactured in different sizes for special applications, the company says. For more details, check No. 7205 on the coupon and mail to this publication.

No. 6819—Boomless Fertilizer Sprayer

The Broyhill Co. announces a new low clearance, boomless fertilizer sprayer designed for fast application of liquid fertilizer. The unit is ideal, the company says, as a rental piece. The sprayer has no boom pipes and the low silhouette prevents tipping on rough terrain, the company says. The unit will spray a 35 ft. swath.

The trailer is of I beam construction with Timken Hi-Speed wheels. The tank is of steel with a 2-in. filler opening and a 270-gal. capacity. For more information check No. 6819 and mail.

No. 2053—New Bag Concept

A single-gusset, sewn-valve multiwall bag which the manufacturers say is a new concept in bag construction, has been developed and introduced by Bemis Bro. Bag Co. Designers say the single-gusset is difficult to distinguish from the two-gusset multiwall when filled, but that it stacks uniformly and can be easily palletized. Advantages cited include additional usable space created by the

flat tube side, more room for product flow during filling, and reduction of blowouts. Products fed into the bags do not back up and clog the filler spout, cutting packaging time and labor. Extra space provided by the flat tube side often permits utilization of a shorter bag and consequent reduction of the manufacturing cost of bagged products, according to Bemis officials. For more information check No. 2053 on the coupon.

No. 6817—Suspension Material

Carbopol, a material which will suspend particles in a solution, has been announced by the B. F. Goodrich Chemical Co. The material can be used in various herbicides and other agricultural wettable powders. According to the company as little as .05% Carbopol, based on the weight

of the total mixture, will retard settling and eliminate the formation of a hard cake. Its use for suspension in insecticides, herbicides and fungicides eliminates the need for repeated shaking. In addition, the company claims, Carbopol acts as a binder to adhere the particles to the foliage. Check No. 6817 on the coupon and mail for details.

No. 6822—Fertilizer Formulation Pad

A new fertilizer formulation pad, suited as a guide for using "Uramon" ammonia liquors, has been issued by the DuPont Co., polychemicals department. The inside cover of the pad contains pertinent information on composition of fertilizer materials, ammoniation rates of phosphates, miscellaneous conversion, and water content of fertilizer materials. For information on how to receive pads, check No. 6822 and mail.

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

Suburbanites are not the only home owners with gardens. Farmers, too, are gardeners.

Farmers, therefore, are logical prospects for garden supplies and no place offers as much convenience for the farmer as the store where he buys his feed, seed, fertilizer, twine, salt and poultry equipment. Why, then, should not the farm store owner seek to add a full garden supply line or expand his present line?

Gardening needs are diverse—and profitable. Insecticides, fungicides, weed killers, fertilizers, seed disinfectants, hoes, rakes, shovels, hand and power tillers, pruning equipment, sprayers—these are some of the products which should be handled by the top-flight retail garden supply department.

Home gardening has gone through a number of stages during the history of the country. For many years, a garden was the family's main source of fresh fruit and vegetables during the growing season. Today gardening is mainly a hobby even on farms.

Prior to World War II, vegetable seed outsold flower seed. Now it is the other way around. The National Garden Bureau says that 30 million people buy flower seed, while only 15 million buy vegetable seed.

Thus, it becomes apparent that interest in gardening is high and hobbyists enjoy the satisfaction of growing things.

Merchandising of chemicals for the gardener, according to Howard A. Weibel, manager, garden chemicals section, E. I. du Pont de Nemours & Co., Inc., implies the sale of "technical products to non-technical people."

"To serve this market, you have to interpret your professional knowledge of agriculture or horticulture in practical terms which the user of your product can apply to his own needs," says Mr. Weibel.

So perhaps the first section of the merchandising bridge between technical know-how and a completed sale is to know the customer. The dealer should know him individually and know him in the aggregate. When competition gets keen, the profitable business goes to the fellow who has information about his market and knows how to use it.

Mr. Weibel cites some facts significant to the dealer interested in the customer in the aggregate.

Estimates are now that the U.S. will have one-third more people in the next 20 years. Throughout the South, towns between 5,000 and 25,000 are showing the greatest rate of growth. They are growing even faster than the cities of more than 100,000 population.

By 1978 it is estimated that 30 million more dwellings will be needed. Even today, incomes are growing, people are moving into new and better homes and becoming more interested in taking care of their gardens, lawns, shrubs, flowers and plants as a result of increased leisure time. But the dealer can't have the market just for the asking. He is in competition with others who are demanding the prospective customer's time and money.

The garden department's specific selling job is to sell things that the home owner needs to make his property more enjoyable to him, more attractive to his neighbors and a credit to his community. To be able to satisfy all these requirements, the dealer must do six things which make the difference between merely selling garden supplies and selling beauty for the home and big yields of fruits and vegetables:

- Study the home owners' needs.
- Stock products that will meet these needs.
- Map a sales policy to get these products to the gardener when he wants them in a way he can use them.
- Aim advertising at telling the home owner how these products can serve his purpose best.
- Train sales persons to talk the home owner's language.
- Follow through by seeing that the products perform as advertised.

Du Pont, in a survey to determine where people buy their garden chemicals, found that more than 57% of the customers rely entirely upon their dealer for advice as to what product to buy. So, when a dealer provides a headquarters for the gardener, he will have to provide the solutions to the problems that the home owner is apt to encounter.

No. 6821—Range Fertilization Report

Balfour, Guthrie & Co., Ltd., has prepared a folder entitled, "2nd Report to California Ranchers on Range Fertilization." The brochure states that "second and third year results show average yearly increase in profits of $14.29 per acre." The folder will be sent if you will check No. 6821 on the coupon and mail it to this publication.

No. 7229—Liquid Tote Tanks

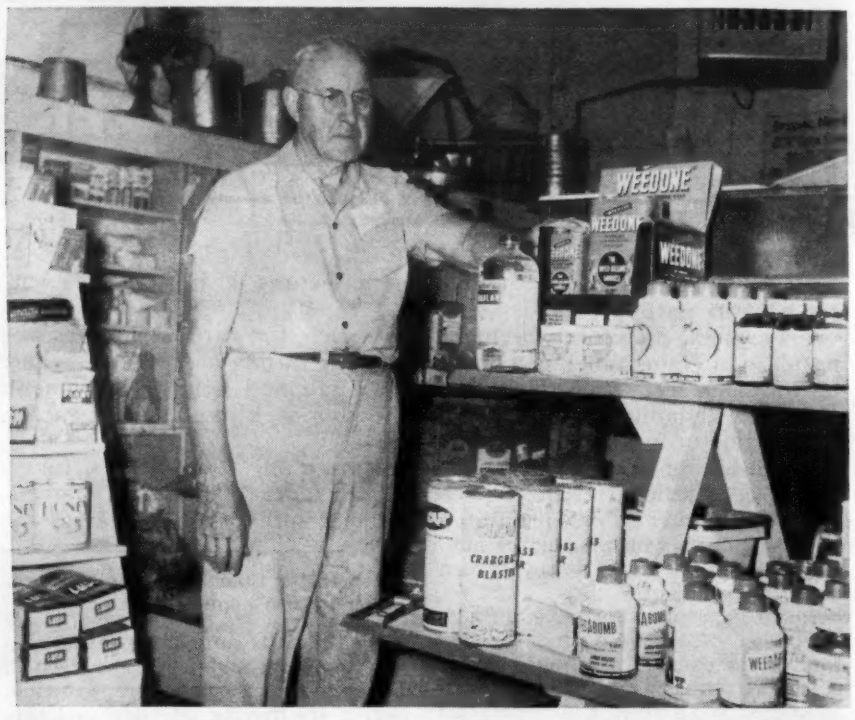
Tote System, Inc., announced the inclusion of a 300-gal. capacity Tote tank in the "Trial Rental Program" instituted by the firm last spring. The tanks are usable for any liquid material and have eliminated the 55-gal. drum in a number of industrial applications, the company said. For further details, check No. 7229 on the coupon and mail to this publication.

No. 6816—Testing Machine

Kohl Enterprises, Inc., Aquafil Division, announces a specially designed arbor press, in combination with a mechanical force gauge, for testing the compression of a given sample of fertilizer. After breaking the same sample, the machine will check the anti-caking ability of the sample over long time storage. For further details, check No. 6816 and send to this publication.

No. 7188—Modern Farming Film

The recent introduction of "do-it-yourself" construction to steel farm buildings is the topic of a 16 mm color sound film, "The New Look in Modern Farming," released by Stran-Steel Corp. Shown in detail is the complete erection of an all-steel pole barn by four men in one week. For further details, check No. 7188 on the coupon and mail. Please print or type.



FRIENDLY SERVICE—Guy B. Anderson, owner and manager of Anderson's Feed and Seed Store, Ogden, Utah. Being crowded for store space, the displays are close together, though neatly arranged. Mr. Anderson is shown beside type of merchandise that sells readily all during the warm months.

BANKRUPTCY FEARS

(Continued from page 9)

department store," said Mr. Anderson, "is the service we give customers. Having been in agricultural selling for nearly 15 years, I know the area quite well and most of the problems.

"When a lady asks about grass seed, we know the kinds best suited, and can tell her how to plant it, what fertilizer to use and what to expect. It's the same way with insecticides. I can recognize any of the destructive insects and know what is required to kill them.

"I doubt that one clerk in 10 in a large department store can be of much help on such technical problems."

Mr. Anderson makes a few trips into the country, but mostly he works closely with the county agricultural agent, the area entomologists and has a wide acquaintance at the nearby A&M College in Logan.

Managing such a store requires a wide variety of merchandise and much personal service. While hundreds of customers find their way to the store, Mr. Anderson is still a strong believer in advertising. He says the competitors are striving to get new customers, so he must do the same. Also many people move away or go into other business, so the farm store owner must make a consistent effort to lure new customers into the store. Mr. Anderson has devised several ways to add more customers and increase sales.

Perhaps the most effective method is his sidewalk displays. Sometimes it seems Mr. Anderson has as much merchandise on the sidewalk as many owners have in their stores. To speed up the movement of goods to the sidewalk and back into the store, he has several large racks built on casters.

On them he places fertilizers, pest killers, garden tools, seed and many other items. In order to keep the displays new and attractive the items are changed frequently.

He also uses the newspapers and radio to good advantage. Specials are announced often, but the main advantage to such advertising, he says, is to keep the name of the store uppermost in the minds of people in and near Ogden.

Inside the store Mr. Anderson uses island and wall displays to advantage, and tries to keep related items close together. For instance, a farmer buying insecticides will find himself very near to the seeds and garden tools. If he buys fertilizers, he will see at a glance some of the small spreaders to speed up the job. By making a study of buying habits, Mr. Anderson has found that such an arrangement greatly increases impulse buying.

Another selling device is to stock larger plants and shrubs than are found in the department stores. They cost more, of course, but the customer can often save months of growing time on his plants.

Mr. Anderson makes good use of pictures and posters put out by the wholesalers, but he goes a step further.

"Customers can see the same posters in any store of this kind," he said. "So to give our place an individual touch, we use hand-painted signs, which tell the price and give other information."

Since most sales are small and a steady string of customers passes through the store, Mr. Anderson has devised several methods to speed up service. When customers are seeking advice, Mr. Anderson talks and works at the same time.

When anyone enters the store, Mr. Anderson or one of the staff greets him, even though they are busy with other customers.

"That is one rule I insist on being obeyed," said Mr. Anderson. "Nothing is more irritating than to enter a store and then just stand there while the clerks ignore you. But if they smile and say hello and perhaps say they will be with you in just a moment, then you feel much better and don't mind waiting."

Training personnel is not much of a problem for Mr. Anderson because the family comprises most of the staff. He hires one saleslady, while the others working with him are his wife, two sons and two grandsons. Together they have built one of the most prosperous farm supply stores in the area.

"Fortunately it is the kind of business I can pass on to my sons," said Mr. Anderson, who is now past middle-age. "If they will follow the methods we are now using, I feel sure the store will continue to make them a good living."

SELLS GARDEN SHOP

DAVIS, CAL.—Claudia's Adobe Garden Shop, here, handling a variety of fertilizers, seeds and agricultural chemicals for lawn and garden, has been sold to Robert and Violet Jean. Former owner was Claudia Simpson.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

More than 300 representatives of the fertilizer manufacturing industry heard thorough-going discussions on production techniques, equipment and the economics of preventive maintenance during the three-day fertilizer industry round table at the Mayflower Hotel in Washington, D.C.

Arizona Fertilizers, Inc., Phoenix, completed construction of a $50,000 emulsifier plant for the blending of liquid insecticides at its Yuma, Ariz., branch. Machinery in the 5,000 sq. ft. plant has a production capacity of about 1,000 gal. per hour and storage facilities for about 10,000 gal.

A description of the program conducted by the National Plant Food Institute in the Southeast, a talk on the merits of soil testing and a panel discussion on a soil fertility program carried on with farmers in two North Carolina counties comprised a large portion of the Southeastern Fertilizer Conference held at the Biltmore Hotel in Atlanta, Ga.

"There are no short-cuts, push-buttons or ready-to-wear solutions" to the problems of the agricultural chemical industry, Frank S. Washburn, general manager of the Agricultural Division, American Cyanamid Co., declared at the closing session of the 25th anniversary meeting of the National Agricultural Chemicals Assn. in Savannah, Ga.

An attempt by the Minnesota Farm Bureau Service Co., St. Paul, to express fertilizer ingredients in elemental terms rather than on an oxide basis is meeting with little reaction on the part of the firm's customers.

North Dakota Nitrogen, Inc., of Bismarck, N.D., announced it had awarded a contract to the Chemical & Industrial Corp., Cincinnati, as consulting and construction engineer for a fertilizer plant in the Bismarck area.

Members of the National Agricultural Chemicals Assn. took a long look at 25 years of growth and progress in the pesticide field during the group's silver anniversary convention here Oct. 29-31—then more than matched the story of the past 25 years with some searching looks into the next 25 years. About 600 attended.

A panel discussion on accident case histories; the value of safety training in plants; safe handling of ammonia and solutions; and a clinical examination of the accident-prone individual made up an important part of the two-day annual meeting of the Fertilizer Section, National Safety Council in Chicago, Oct. 20-21.

An intensive effort to eradicate witchweed, a parasitic plant that attacks corn and some other crops, is getting under way in North and South Carolina, the U.S. Department of Agriculture announced.

A total of 1.9 million short tons of marketable potassium salts were produced in the U.S. in the first half of 1958, the U.S. Bureau of Mines reported. This tonnage contained 1.1 million tons of K_2O equivalent.

The Association of American Fertilizer Control Officials and the Association of American Pesticide Control Officials urged that defoliants, desiccants, plant regulators and nematocides should be brought within the scope of the Federal Insecticide, Fungicide and Rodenticide Act. The resolution was made at the two groups' annual meeting in Washington, Oct. 17 and 18.

The Association of American Fertilizer Control Officials, at its annual meeting, recommended that the taking of fertilizer samples be done at the individual fertilizer plants.

A conference on chemical control problems with emphasis on methods of analyzing fertilizers for determination of moisture, free acid, available P_2O_5 and other content, was held in Washington, Oct. 16.

Hugo Riemer was named executive vice president of U.S. Borax and Chemical Corp., following a meeting of the board of directors in New York.

Prices paid to farmers advanced 2% in the month ended Sept. 15, USDA announced. This forward move was a surprise to many economists who had not expected to see a favorable rise at this time.

The number of cotton acres fertilized each year is second only to the corn crop, according to a USDA survey. Of 19 million acres of cotton harvested in 1954, year of the survey, 58% had received fertilizer.

SunOlin Chemical Co., a joint subsidiary of Olin Mathieson Chemical Corp. and Sun Oil Co., was formed. The new firm will produce urea. James I. Harper of Sun Oil is president, and S. S. Johnson, Olin Mathieson, vice president.

Hercules Powder Co. announced that its new plant at Hercules, Cal., is producing urea in commercial quantities. The plant has a capacity of 20,000 tons a year.

California Spray-Chemical Corp., Richmond, Cal., announced that it plans to construct a $4,600,000 chemical fertilizer plant at Kennewick, Wash. Completion is scheduled for the end of 1959.

Page Edmunds was appointed assistant general manager of chemicals in the W. R. Grace & Co. Davison chemical division. Mr. Edmunds was also made vice president of Davison Chemical Co., Ltd., Canadian affiliate of the division.

Fertilizer and pesticide sales prospects in cotton-growing areas of the U.S. appear to be brighter for next year since gross income of cotton growers improved this season. Gross income was estimated at $1.95 billion as compared to $1.5 billion last year.

Tobacco acreages of U.S. were reported by USDA as being heavy users of fertilizer materials. A state-by-state survey revealed that practically the entire acreage of tobacco receives large applications of fertilizer.

Edward R. Schumann was named to represent the National Plant Food Institute in the St. Paul District.

Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

When Oscar came to work that morning in late fall, he tucked his umbrella under one arm while he fumbled for his office key in his pants pocket. Oscar always took an umbrella to work on days when rain threatened. Once having had the umbrella habit, he continued it, for Oscar was not a man likely to change. If he thought a habit was a good one, he stuck to it for years.

Lots of people in town who thought they were modern, went without umbrellas and hats even, Oscar reflected. Some of them kidded him when they saw him carrying the umbrella on dark, rain-threatening days.

"Hey, Oscar, what's that you're carrying?" a village wag would yell loudly as pudgy Oscar strode determinedly to and from work.

Another would yell, with everyone listening interestedly, "Oscar, think it will rain today?"

One time Oscar replied curtly, "Ach, I know enough to come in out of the rain. You don't." And for once the townspeople laughed with Oscar, not at him, and the smart aleck who asked the question reddened and chewed his lip.

When Oscar got inside the office, he took off his rubbers, hung up the neatly rolled umbrella and removed his six year old felt hat. He had never had the hat cleaned by a professional. Minnie always bought, at Oscar's direction, a five gallon can of cheap cleaning fluid and dunked Oscar's old hats, his suits and her dresses into the stuff. Saved a lot of cleaning bills, and Oscar and Minnie liked to save money.

They got as much of a thrill out of saving money as did a tycoon clipping Brazil banana plantation coupons during a fruit shortage.

"Ach," cried Oscar, as he surveyed the office and salesroom with his sweeping, critical glance. "Himmel, what now?"

At many places on the islands were white cardboard, hand painted signs. Each sign carried the same word on top. It was "THINK," the word which a large international business machine firm uses extensively to keep its employees from vegetating into self satisfaction. One sign which Oscar inspected at an island said, "THINK . . . You can now buy our overstock of insecticides for use next spring at 30% off list!"

"Such foolishness!" stormed Oscar whose praise of his partner Pat was as sparse as that given by a 30 year married man to a nagging spouse.

"Ach, always he wants to give schtuff away!" Oscar protested. "Why can't we safe it until next summer and sell at full price? And maybe up it if the price goes up? Such a business man."

Another sign stated "THINK . . . We will spread fertilizer for you through November and December right on top of the snow. Get in your order now. Save time for a busy spring by having us spread fertilizer now."

"Huh," growled Oscar, "we shouldt spreadt fertilizer in the snow. It is too hardt on the trucks. Last year we hadt to have a garage tow truck bring in our spreader when it tipped over in a farmer's fieldt. How crazy can a partner get?"

At this moment Tillie Mason, the plump, ulcerish bookkeeper, arrived and Oscar bristled up at her. "Look what that crazy Pat has done. He has been working nights again. Now he sticks those crazy signs all over the store and makes it look like a junk shop. And I'll bet he spendt a lot of money for cardboard, too."

Tillie walked over and looked at a few signs. "I think it looks cute," she said. "All those THINK signs. It'll make farmers feel we have a lot of brains around this place."

"Brains!" thundered Oscar. "It don't take brains to spendt money. All you got to do is be foolish—like him!" And he pointed at Pat's littered desk. "The only place where there's brains aroundt here is over there!" He pointed at his own neat desk.

Oscar went back to his desk fuming. For a moment he sat there staring straight ahead of him, his lips in a tight white line. Then he leaped up and went into the warehouse. He came back in a few moments with a huge piece of cardboard—a sign which some manufacturer had given them. The reverse side of the sign was white.

Putting the sign on his desk, Oscar took a thick, black pencil and began lettering something on the back. His eyes glinted coldly. Tillie was curious what he was writing, but she did not dare inquire.

Finally Oscar finished the sign which he then placed on Pat's desk. He propped it up with a stack of magazines. Then he stood back and surveyed it.

The copy said:

"Save Money . . . It Is Always in Style.

"Collect Bills Every Day . . . That Saves Money, Too.

"Get to Work Early . . . That Saves Time.

"Work Days, Not Nights . . . That Saves Electricity.

"Save Money . . . Then You Get Paid on Time.

"Don't Give Insecticides Away . . . That Saves Money, Too.

"Don't . . ."

Oscar threw down the pencil. "Ach, what's the use?"

Want to Grow More Dollars per Acre?

MAKE **TRONA® POTASH**
YOUR ACTIVE PARTNER

Muriate of Potash
60% K_2O minimum
Regular grade
Granular grade

Your crop dollars will grow with properly balanced fertilizers high in potash content. Abundant available potash produces quality yields, better sizing, builds healthier plant tissues, bolsters crop resistance to drought and disease... qualities that bring you higher prices at the market. Now is the time to think about your plant food program. Consult your agricultural advisor. Find out how TRONA POTASH, manufactured to premium standards, can be your active partner in bumper crop production.

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COMPANY CHANGES

(Continued from page 9)

the increasing number of irrigation wells being drilled.

The water is deep and pumping costs are high, so farmers are finding they must make every acre produce to its utmost to show a profit. Fertilizers have helped do this.

Mr. Guthals has found that a thorough knowledge of fertilizer has helped in making sales, because few farmers had ever used it before. Most of them didn't know what they needed. By making the proper recommendation and by trying neither to undersell nor oversell, he has managed to gain their confidence and increase business. At present both ammonium nitrate and ammonium sulphate are good sellers and bring increased yields.

One product widely used is weed killers. This is an area where maize, wheat and corn are grown. The land is a high plain as level as a kitchen table, and the strong winds that sweep across it every winter and spring toss the weeds about and scatter the seed everywhere.

Fields become weedy in a few years, so a spraying program is not hard to sell once it is started. The farmer finds it much cheaper and quicker than trying to eliminate the weeds by plowing and hoeing. At first, however, Mr. Guthals had to point out the advantages time and time again before farmers would try a chemical control program.

"Now many sales are repeat orders and come in as a result of the service we give," he said, in referring to both fertilizer and herbicide sales.

Mr. Guthals says a farmer wants more than just the product he buys. He also needs information, advice and instructions on how chemicals can be handled most effectively.

One type service given is mutually helpful to both the store and customers. This is a pair of sprayers, one skid type and one trailer type. The sprayers are operated by the store and are in use much of the time. Mr. Guthals charges by the hour. He finds this is not only a lucrative line but it helps bring more people to the store.

Managing a successful store requires more than just salesmanship, he has found. One serious problem with farmers in financial straits is the amount of credit asked. Mr. Guthals gets around this by running a cash business altogether. Customers pay when purchasing goods or they can settle the account within a week of delivery.

"This is a difficult kind of business to run without giving credit," he said, "but it can be done. An owner can't afford to tie up thousands of dollars in delinquent accounts. He needs this money for operational capital."

During the last few years the business has become not only family-owned but family-operated. Mrs. Guthals is the bookkeeper, saleslady and helps with management problems. Two sons, Paul and Charles, are full-time partners in the work. Blessed with energy and nice personalities, they have certainly been no handicap to the business.

Mr. Guthals attributes some of the store's success to the fact that it caters to everyone from the backyard gardener to the largest farmer in the county.

The store is now being crowded for room, and there is a possibility that a larger more modern building will be constructed in the future. In a city where half the businesses are sick because of the drouth and lowered farm income, this indicates that the friendly Guthals family is getting its share of both farm and town trade.

DUSTER DIES

SACRAMENTO, CAL. — Homer L. Atwood, 54, owner of Atwood Aviation, Inc., a Salinas, Cal., crop dusting firm, was killed in North Stockton, Cal., apparently while attempting to make an emergency landing in a light twin engine aircraft. Two passengers with Mr. Atwood also perished in the crash. Mr. Atwood, who maintained a fleet of 40 crop dusting aircraft, was en route from Salinas to Reno, Nev.

SPRAYER PAYS OFF—Charles Guthals is standing beside a motorized sprayer used by the store to do customer spraying on trees, crops and turn rows. Charles is one of the two sons who help Mr. and Mrs. A. E. Guthals in the operation of Guthals Produce Co., Clovis, N.M. The two boys take care of the spraying equipment and do much outside sales and service work.

CUSTOMER KING

(Continued from page 9)

might be: "Is your lawn brown?" or "Do you know that this is the time of year to fertilize roses?" Even the drivers of the store's two delivery trucks are instructed to watch for lawn and garden problems where they deliver merchandise, call the condition to the attention of the homeowner and suggest remedies.

During heavy sales periods in the nursery, every buyer is told that snail pellets must be put out with the nursery item. These methods of pushing products needed in the yard and garden have helped to boost sales in the store.

The partners' display know-how brought them third place in the national Chlordane Contest in 1957 with the theme, "The grass is always greener on the Chlordane side of the fence." This year they again participated in the contest with three displays. A large window arrangement with a circus atmosphere was titled "Chlordane Carnival and Farewell to Pests." A 10 by 20 foot wall poster at the rear of the store showed a train pulling a carload of Chlordane with the heading, "Chlordane kills all pests;" and a mass floor display of Chlordane products surrounded a large cutout of a policeman with the theme, "Stop the pest invasion with Chlordane."

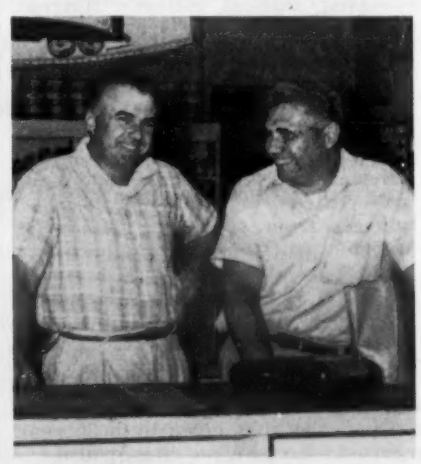
Sales held throughout the year also help to boost the firm's business. Beginning March 8 of each year, the store holds a week-long anniversary sale; and in August a "Whale of a Sale" is staged.

Merchandise in the store is arranged primarily on floor displays. Some products such as chemicals and lawn seeds are stored on wall shelves on one side of the store, but similar articles along with fertilizers and gardening equipment are shown on small tables and floor shelves. Rakes, forks, shovels, and hoes are among the many long-handled tools displayed in a series of racks in the southwest corner of the store.

The northwest section houses an attractive arrangement of flower and plant containers for the home. Large, colorful pots for floor or wall use along with a variety of wooden boxes and baskets are shown on display tables and a wall peg board. In front of this area is a spot devoted to lawnmowers of various types.

Garden furniture, charcoal broilers and picnic tables are sold by the store and are displayed near the front to take full advantage of the display windows. Two floor boxes about 3 by 7 ft. housing various plants and flowers for use in the home are set out in the middle of the store area to enable customers desiring house plants to do their shopping inside the store rather than in the nursery.

The nursery accounts for about 20% of store's yearly sales and is the newest part of the operation. The land was acquired in 1949, but the nursery did not reach its present size until this year. It is located on the south side of the store and is adjacent to the building's storage area in the rear. Storage space consists of a shed and a section of the store itself where bulky products such as fertilizers and peat moss are kept.



EX-ATHLETIC COACHES Luke Argilla (left) and Ken Boscacci, knowing very little about retail stores at the start, have turned their garden supply store in Redwood City, Cal., into a big operation with an annual sales total of more than $200,000. The two owners have accomplished this by "treating the customer as king," they say.

USDA COMMITTEE TO MEET

WASHINGTON—As part of the annual meetings of the research and marketing advisory committees of the U.S. Department of Agriculture, the committee on Soils, Water, and Fertilizer will meet here on Jan. 14-16, it was announced. A trip to Beltsville, Md., is included in the program. C. P. Barnes is executive secretary of the committee.

FARM SERVICE DATA

Extension Station Reports

Fertilizer and grain make a profitable combination, according to the California Fertilizer Assn., referring to a recent report of the Orange County agricultural extension service of the University of California.

The service reports that barley yields on a 270 acre field averaged five 100 lb. sacks more per acre where fertilized than on a comparable acreage which was not fertilized. The cooperating barley farmer reported a net increased return of $8 per acre due to the use of fertilizers.

In the same report, the Orange County agricultural extension service said that in six fertilizer trials, "applications of nitrogen and phosphorus increased the yield of native forage grasses. The largest increase was where nitrogen and phosphorus were used together. When used singly, nitrogen gave the larger increase in forage yield."

The association recommends the local fertilizer supplier as a good source of information concerning the plant food needs of all the crops produced in the area which he serves.

★

Proper fertilization and grazing management can produce big increases in certain annual range grasses.

That fact has been shown in tests on annual rangeland grasses at the Hopland field station of the University of California.

Production of some grasses doubled and tripled after fertilization with nitrogen and phosphorus, according to Milton B. Jones, station agronomist. Fertilizers increased the yield of soft chess and wild oats (desirable grasses) and of rip gut (undesirable).

Annual fescue grasses showed little response to fertilizers in areas where these species were sparser than soft chess and wild oats. But where the percentage of annual fescues was high before fertilization, fertilizers tended to make them more dominant.

The Hopland tests also showed, Mr. Jones said, that the amount of grazing would partly determine which grass would dominate the rangeland that had been fertilized. Grazing tended to minimize changes caused by fertilization.

On a fertilized area heavily grazed in the late winter and early spring, the percentage of soft chess increased and rip gut decreased. In ungrazed areas fertilization reduced the percentage of soft chess, and increased rip gut.

On an area seeded to sub and crimson clover, nitrogen fertilization decreased the percentage of the crimson but had little effect on the sub clover. Heavy grazing on these fertilized plots during the growing season increased the percentage of sub clover and reduced the crimson.

On ungrazed areas, resident clovers were reduced by nitrogen fertilizer, and increased by phosphorus. Under light grazing, the change was similar but the differences were not so great.

Nitrogen applications gave increased growth of broad-leaf filaree, as measured on ungrazed plots, Mr. Jones said. No effects on filaree from fertilization were noted on plots where grazing was allowed, because the sheep ate off the additional forage that had been produced.

★

Wise use of credit can help farmers increase their net income and boost their living standard, reports the California Fertilizer Assn.

In the present cost-price squeeze borrowing money through banks and other commercial loaning agencies in order to buy fertilizer and other profit-building production items can be good business for farmers.

The association pointed out there is no reason to be afraid of bank credit and instead it should be considered as a means to better farm income. For this reason sound thrifty habits that will enhance one's credit standing should be practiced as much as possible.

The association recommends full use of the proper commercial crop production loaning agencies available to the California farmer, to assist him in the purchase of his fertilizer and all other supplies necessary in his crop production program.

★

Unwise use of credit can more than offset the advantages that are gained through its proper use.

Good legume pasture can save hog farmers up to 20% on the cost of grain and concentrates, reports the Midwest Division of the National Plant Food Institute, in citing a statement by J. A. Everts, University of Wisconsin animal husbandman.

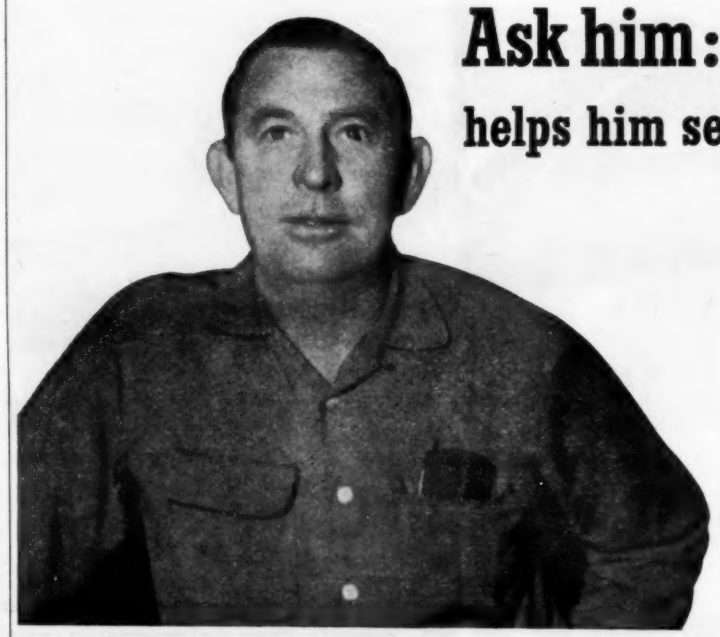
In Wisconsin tests, pigs on pasture gained 1.34 lb. a day compared to 1.28 lb. for pigs not on pasture. Moreover, the pasture-fed pigs ate 40 less pounds of concentrate per 100 lb. of weight gain.

Mr. Everts estimates an acre of good pasture will carry 15 to 20 pigs from weaning to the end of the pasture season.

Among other advantages, legume pastures are high in calcium and vitamins, he says. Also, good, clean, well-rotated pasture helps protect pigs against parasite infections.

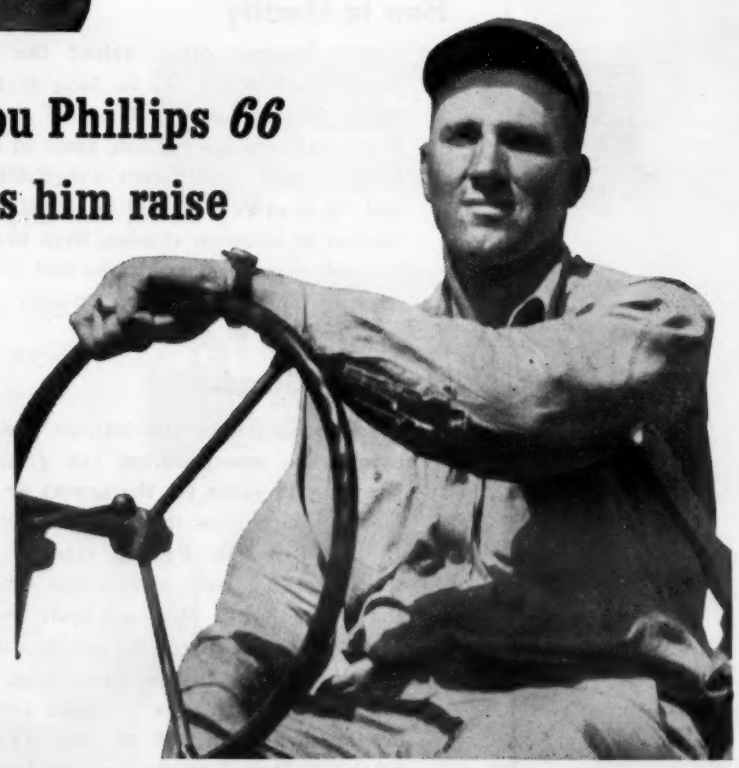
"Whether the alfalfa stand is good or poor depends much on the soil's fertility level," says the National Plant Food Institute. "When soils are well supplied with plant nutrients, legume yields and quality are high.

"Thick, healthy growth comes from adding fertilizer carrying needed amounts of phosphate and potash when the legume stand is established. Then yields and quality can be kept high by top-dressing the fields each year with maintenance applications of fertilizer."



Ask him: he'll tell you Phillips Service helps him sell more fertilizer

Clarence Osterbuhr, president of Anamo Co., Inc., Garden City, Kans., says: "I like to sell Phillips *66* Ammonium Nitrate because it's a first class product. But I also like Phillips service. Not only does my Phillips field man help me in many ways, but I can depend on the full resources of Phillips service, if I need them." Mr. Osterbuhr is just one of many dealers who find that the combination of a top quality product and Phillips service helps them make more sales and greater profits.



Ask him: he'll tell you Phillips *66* Ammonium Nitrate helps him raise better crops

Frank Wise, who farms 960 acres near Dimmitt, Tex., says: "I like the way Phillips *66* Ammonium Nitrate stores and spreads. Nothing discourages a farmer more than to discover fertilizer skips when his crop starts coming on. Phillips *66* Ammonium Nitrate spreads evenly, and gives me a more uniform crop response." Word-of-mouth praise of Phillips *66* Ammonium Nitrate by satisfied users is making new customers for dealers everywhere. You, too, will find Phillips *66* Ammonium Nitrate and Phillips service a profitable combination.

Ask us: Get all the facts about Phillips *66* Service. Call or write:

PHILLIPS PETROLEUM COMPANY

Phillips Chemical Company, A Subsidiary, Bartlesville, Oklahoma

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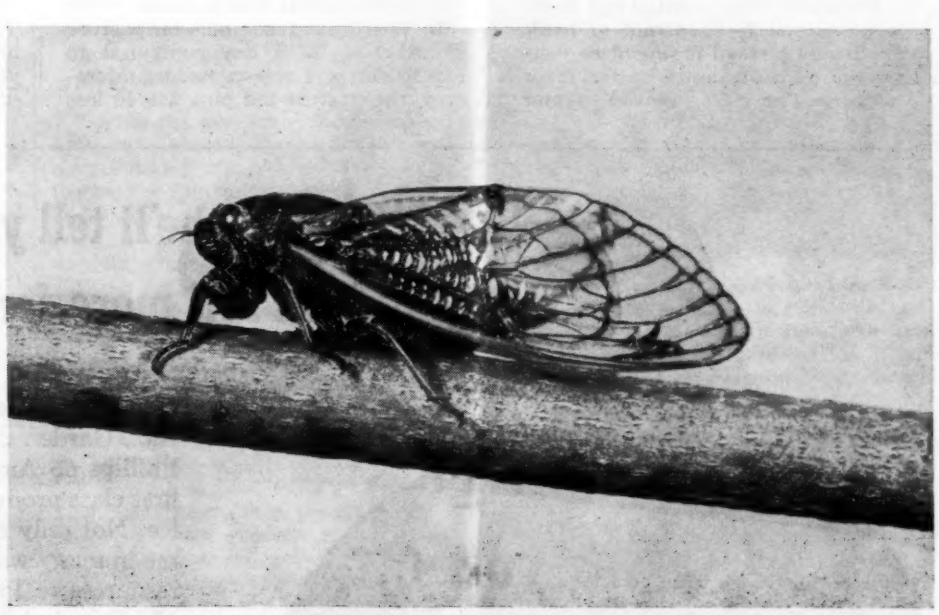
BARTLESVILLE, OKLA.—*Adams Bldg.*
CHICAGO, ILL.—*7 South Dearborn St.*
DENVER, COLO.—*1375 Kearney St.*
DES MOINES, IOWA—*6th Floor, Hubbell Bldg.*
HOUSTON, TEX.—*6910 Fannin Street*
INDIANAPOLIS, IND.—*3839 Meadows Drive*
KANSAS CITY, MO.—*201 E. Armour Blvd.*
MINNEAPOLIS, MINN.—*215 South 11th St.*
NEW YORK, N.Y.—*80 Broadway*
OMAHA, NEB.—*3212 Dodge St.*
PASADENA, CALIF.—*317 North Lake Ave.*
RALEIGH, N. C.—*401 Oberlin Road*
SALT LAKE CITY, UTAH—*68 South Main*
SPOKANE, WASH.—*521 East Sprague*
ST. LOUIS, MO.—*4251 Lindell Blvd.*
TAMPA, FLA.—*3737 Neptune St.*
TULSA, OKLA.—*1708 Utica Square*
WICHITA, KAN.—*501 KFH Building*

BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



Periodical Cicada

How to Identify

These insects, often called the "17-year locust", are about 1⅝ in. long in the adult stage (shown above). Most of its body is black, the legs are reddish, some of the veins in the nearly transparent wings are orange, and its eyes red. Periodical cicadas, closely related to common cicadas, have become the subject of odd superstitions and stories regarding their appearance. Actually, they are not "locusts" at all.

Habits of Cicadas

Mystery surrounds the instinct which urges nymphs to emerge from the ground after spending 13 years (in the south) or 17 years (in the north) in the soil at depths from 18 to 24 inches. Female cicada punctures the bark of a twig and makes a pocket in the wood, where she lays some two dozen eggs in a couple of rows. From five to twenty such pockets are made in a twig, and the total number of eggs a single female can lay number from 400 to 600. These eggs hatch in about 7 weeks and the hatched-out nymphs fall to the ground into which they burrow until they find roots from which they might suck juice. The nymphs remain alive in the ground for 13 or 17 years, at the end of which time they burrow upward to within about an inch of the surface. Here they halt and wait for whatever signal or urge which compels them to emerge in vast numbers and head for trees, bushes, poles, or other upright objects. Here the insect sheds its nymphal skin and becomes an adult. They mate within a week after becoming adults, and in a few days, the females lay eggs. The adults live only five or six weeks, but their "song", an incessant whirring, droning monotone keeps going during each day of that time.

Damage Done by Cicadas

The egg-laying habits of the female can cause severe damage or even destruction to young, transplanted trees in nurseries and orchards, and some damage to older trees. The punctures in twigs and branches also offer shelter and feeding locations for scale insects, woolly aphids, and other pests. Some fruit is also lost from bearing trees that have been severely injured.

Control of Cicadas

This insect seems to prefer oak, apple, hickory, peach, and pear trees for egg-laying, so in the case of fruit-bearing trees care must be taken in the application of insecticides for control. Spraying should begin just as the cicadas begin to lay eggs, and repeated applications are usually needed to keep an infestation in check. Early morning sprayings are most effective.

Illustration of Periodical Cicada courtesy of U.S. Department of Agriculture.

Nature Offers Help In California Fight Against Bark Beetle

BERKELEY, CAL.—A threatened attack of bark beetles in pine forests of the western Sierra region appears to be subsiding under natural controls, according to an entomologist at the University of California.

The stage was set this year for serious outbreaks of the insects after last winter's heavy snows and ice storms left a wake of broken trees through the area.

Large populations of the Ips engraver beetle were building up in this broken wood last spring, and ordinarily they would emerge later in the year to attack the tops of standing green trees.

Such an attack by Ips can trigger a more dangerous attack the following spring by the western pine beetle, and extensive direct control measures would then be necessary to prevent widespread loss of timber.

But as it turned out this year, natural factors appear to have saved man the trouble and expense of coping with the problem.

In his recent observations at the university's Blodgett Forest (El Dorado County), A. D. Moore, entomologist, found Ips beetles emerging at a very low rate (compared to the rate of initial attack in the slash material). If this trend continues during this month, Mr. Moore says, then the chance of a serious Ips outbreak this year will be eliminated.

What caused the welcome turnabout? Probably a combination of the beetles' natural enemies including insect predators, parasites and birds, says the entomologist.

Conference on Mineral Nutrition of Trees Set

WASHINGTON — The Southeast's first conference on Mineral Nutrition of Forest Trees will be conducted at Duke University Dec. 4-5, sponsored by Duke University, N.C. State College, the American Forestry Assn., and the American Potash Institute.

The conference is expected to attract 150 delegates from the eastern part of the country—federal, state, industrial, and university research personnel interested in the mineral nutrition of trees.

The purpose is "to review the status of knowledge and opportunities for basic and applied research in the field of mineral nutrition of trees," according to Dr. Charles W. Ralston, program committee chairman and a member of the Duke school of forestry faculty.

Speakers from the U.S. Forest Service, Rutgers, Cornell, Duke, N.C. State, USDA at Beltsville, TVA, Louisiana State University, and the American Potash Institute will discuss important topics related to mineral nutrition of trees.

Reichhold to Build Phenol Producing Plant

TACOMA, WASH. — Engineering work is now in progress for the construction of a phenol producing plant here by Reichhold Chemicals, Inc., it has been announced by E. M. Skytta, vice president and general manager of the company's Pacific Northwest division.

Plans specify a $4 to $5 million plant capable of producing 60,000 000 lb. of the chemical per year, following an initial production rate of about 30,000,000 lb. The firm said that the area offered potential for phenol in several fields, including herbicides.

NURSERY OPENS

CONCORD, CAL. — CBS Nursery opened here recently at 1111 Monument Blvd. Owned by Harold Lamoureaux and George Haack, the nursery handles a variety of agricultural chemicals, fertilizers and seeds for the lawn and garden.

Gloomicides

A minister looked at one of his parishioners coldly.

"I hear you went to a ball game Sunday instead of coming to church," he said.

"That's a lie," the man protested, "and I've got the fish to prove it."

★

"I'm not going out with Bill any more. He knows too many naughty songs."

"Does he sing them to you?"

"Well, no . . . but he whistles them."

★

On his return from a meeting, the fond wife asked her husband, "How was your talk tonight?"

"Which one," he retorted, "the one I was going to give, the one I did give, or the one I delivered so brilliantly to myself on the way home in the car?"

★

The short, unhappy life of Dennis MacDougal ended at the age of 48. His bereft widow, inconsolable at first, finally got a dog to ease her loneliness. Soon she became very attached to it and her sorrow mellowed.

"She's happy because she has gotten back into her old pattern of life," mused a neighbor. "That dog is the perfect substitute for poor Dennis. He's out all day, snoozes all evening, and she feeds him out of cans."

★

While visiting a couple who had recently moved into a new home, a friend inquired how they liked their neighbors.

"Well," said the husband, winking on the sly, "I'd say I'm pretty lucky there. We have a good-looking widow living on each side of us. Quite unusual."

"Yes, it is," his wife flashed back, "and if I catch him fooling around with either one of them, there'll be three in a row!"

★

Alfredo Schulze, the abstract painter, sat in the bar and stared at the mass of bottles. "What's the matter?" he was asked.

"It's terrible!" he replied. "Yesterday I found out for certain that I'm not a good painter."

"Then get into another profession . . . "

"Too late. I'm famous now."

★

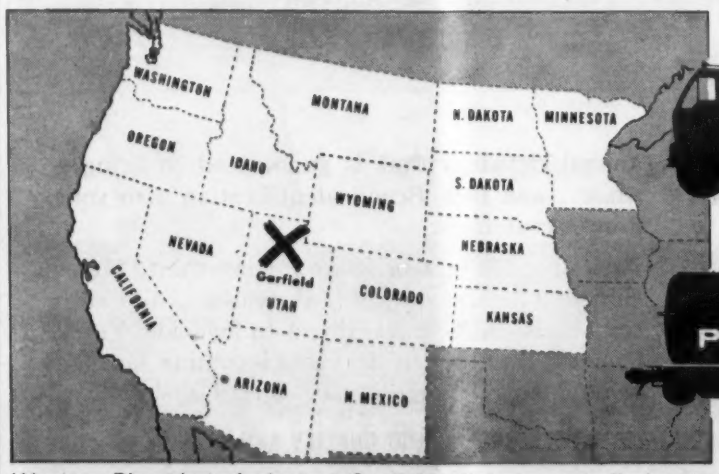
Dear Sir: Please send me my money back. After taking six cans of your corn syrup my feet ain't any better than they was.

Railcar or truck...
straight or combined loads...
anywhere in the West...

your shipment gets there FAST when you order ANCHOR phosphates!

Your customers get the fast service they like when you order *Anchor* for their phosphate needs. Western Phosphates' centrally located plant at Garfield, Utah, and network of in-transit warehouses assure prompt delivery to Western growers.

For full information, call any office of Wilson & Geo. Meyer & Co., Intermountain, sales agent for these 7 Anchor products. They will expedite your order.



Western Phosphates' plant at Garfield, Utah, is centrally located to serve all the west... fast!

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Industry Patents and Trademarks

2,858,191

Production of Gases Rich in Sulfur Dioxide Suitable for Working Up Into Sulfuric Acid. Patent issued Oct. 28, 1958, to Adolf Johannsen, Ludwigshafen (Rhine), Willi Danz, Ludwigshafen (Rhine), Oggersheim, Wilhelm Pfannmueller, Mannheim, and Herbert Wolf, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin-&-Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany. A process for working up a liquid containing sulfuric acid which comprises spraying said liquid into the upper part and over the cross-section of a layer consisting of unroasted and mainly of substantially roasted particles of iron pyrites undergoing roasting, said layer having a height in the quiescent state greater than 50 centimetres, passing air upwardly through said layer to maintain said particles in random turbulent motion within the confines of the layer, adding comminuted iron pyrites to the layer in an amount up to about 1.5 metric tons per hour per square metre of roasting surface and withdrawing corresponding amounts of roasted material from the same, said liquid being sprayed into the layer in an amount sufficient to supply about 0.465 to 0.804 part by weight of sulfuric acid per part of said comminuted pyrites added, and maintaining the temperature of said layer at about 800° C. to 1100° C. and below the softening point of the substantially roasted material by adjusting the amount of said liquid sprayed into the layer relative to the amount of said comminuted pyrites added, said air being passed through said layer in an amount at least sufficient to supply the oxygen necessary for roasting said pyrites with the formation of oxidic roasted material and not supplied by the decomposition of the contents of said liquid.

2,858,203

Process for the Continuous Production of Superphosphate. Patent issued Oct. 28, 1958, to Giacomo Bellinzoni, Milan, Italy, assignor to Montecatini, Societa Generale per l'Industria Mineraria e Chimica. Process for the continuous production of storage-stable, pulverulent superphosphate, comprising continuously measuring quantities of sulphuric acid and finely ground phosphate rock, intimately mixing said measured quantities of sulphuric acid and phosphate rock, continuously feeding the resulting reaction mixture into one end of a partly enclosed system, forming of the reaction mixture a layer 30 to 35 cm. high within said partly enclosed system, maintaining said layer at a temperature of 80 to 100° C., moving said layer at a speed resulting in a residence time of 10 to 20 minutes through said partly enclosed system while simultaneously exerting a transversal mixing effect upon said layer, applying a vacuum equal to 2-5 mm. Hg at the feed end of said partly enclosed system to expel reaction gases and water vapors, and withdrawing the reaction mixture at the other end of said partly enclosed system.

2,858,250

Pesticidal Composition Containing a Water Dispersible Lignin Sulfonic Acid. Patent issued Oct. 28, 1958, to Robert J. Beary, Blue Point, N.Y. A multi-purpose pesticidal composition in particulate form consisting essentially of about 45 to 65% of a readily water dispersible lignin sulfonic acid, 55 to 35% of a plurality of organic pesticides stable at neutral and acid pH's and up to 4% of adjuvants, said pesticide content being composed of about 15 to 60% of a plurality of insecticides, 10 to 60% of a plurality of fungicides, and 5 to 15% of an acaricide.

2,859,105

Granular Fertilizers and Process for Making Them. Patent issued Nov. 4, 1958, to Jean Moyrand, Chauny, and Bernard Bigot, Rouen, France, assignors to Societe Anonyme des Manufactures des Glaces et Produits Chimiques de Saint-Gobain, Chauny & Cirey, Paris, France. A process of making fertilizer from a sludge resulting from the attack by nitric acid on natural phosphate of fertilizer grade from which calcium nitrate has been removed and to which ammoniacal nitrogen has been added and which comprises about 28% water, which comprises mixing ammonia with the sludge, simultaneously adding thereto hot, oversized granules, as hereinafter defined, taken from the fertilizer produced by the process, while maintaining the sludge at about 105 degrees C., removing a part of the product thus produced and adding thereto additional quantities of said hot, oversized granules while maintaining said part at about 90 degrees C., mixing the product with enough cold, undersized particles, as hereinafter defined, taken from the fertilizer produced by the process, to produce a paste, while maintaining the temperature under 70 degrees C., mixing the paste thus formed with disruptive agitation with potassium chloride and with finely divided fertilizer derived from the product produced by the process, drying the product, separating it into parts having dimensions on the order of 2 to 4 millimeters, dimensions over that size and dimensions under that size, and re-cycling the parts having oversized dimensions to the process steps as hereinbefore indicated.

Industry Trade Marks

.The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

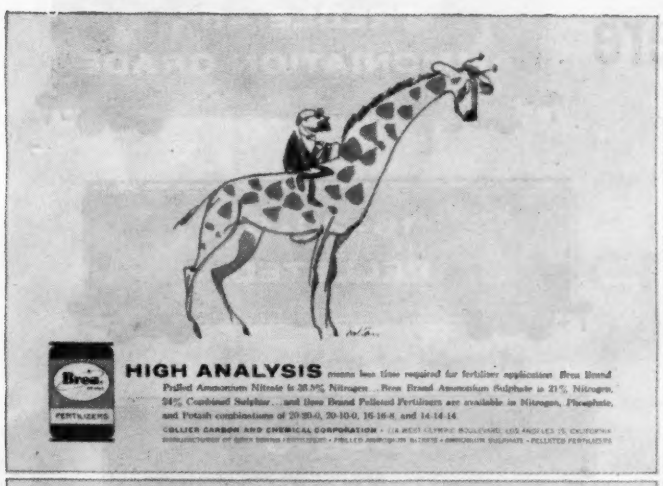
Acti-Dione BR, in capital letters, for fungicide for use in the treatment of blister rust cankers on trees. Filed Jan. 8, 1958, by The Upjohn Co., Kalamazoo, Mich. First use Sept. 19, 1957.

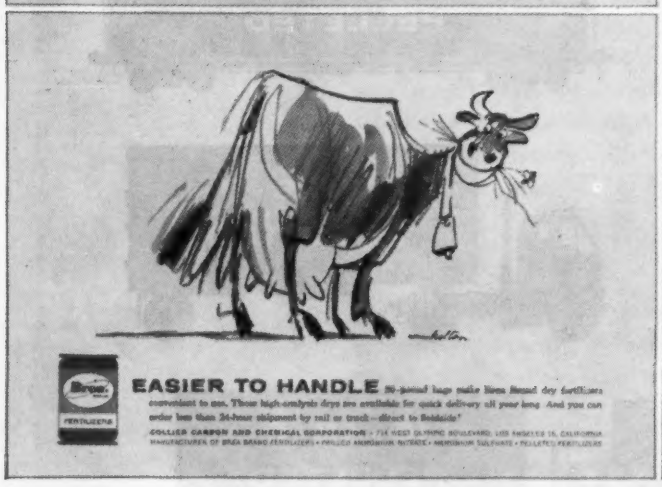
Gro-Rite, in capital letters, for fertilizer. Filed Oct. 4, 1957, by Bandini Fertilizer Co., Los Angeles, Cal. First use on July 15, 1931.

Hand Drawn Design, large black N over large black diamond with the word Nitra spelled out for ammonium nitrate. Filed Sept. 26, 1957, by Mid-South Chemical Corp., Memphis, Tenn. First use Aug. 16, 1957.

Hand Drawn Design, large black N over large black diamond with the word Aqua spelled out, for aqua ammonia. Filed Sept. 26, 1957, by Mid-South Chemical Corp., Memphis, Tenn. First use Aug. 16, 1957.

Who Says Dry Fertilizer Makes "Dry" Reading?





Western growers and dealers are enjoying the series of cartoon ads now appearing in regional farm publications...calling extra attention to some of the many benefits to be obtained from Brea Brand fertilizers.

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USDA Scientists "Harvest" Radioactive Contamination in Fallout Removal Tests

WASHINGTON—Radioactive contamination is being "harvested" on experimental areas at the U.S. Department of Agriculture's Beltsville, Md., research center.

USDA engineers and soil scientists are trying to find effective methods of removing radioactive fallout from agricultural land in case such removal becomes necessary in the future. Accidental contamination and fallout from enemy atomic or hydrogen bombs are potential dangers.

The Beltsville tests are supported with funds from the Atomic Energy Commission.

Test plots are being sprayed with low concentrations of short-lived radioactive materials. Rays emitted by these isotopes are detectable yet far less lasting than the rays of strontium-90—an important isotope in the fallout from atomic and hydrogen bombs—which are capable of contaminating farmlands for years.

Thus far, the scientists have evaluated several cultural practices. Soil treatments are currently being evaluated.

Tests to determine to what extent certain crop and land uses act as shields against soil contamination by fallout and as aids to effective removal of contamination have shown none of the methods completely prevented radioactive isotopes from reaching the soil.

Raking and removing heavy and medium mulch layers—the method that proved best—cleaned up nearly all the radioactivity from the test plots. Cutting and removing sod proved effective. Mowing and collecting growing crops were less effective.

Experiments now in progress are designed to test the decontaminating ability of emulsified asphalt and other soil treatments on bare surface soil affected by simulated fallout. Portions of the test areas have been either plowed, plowed and disked, or prepared as finished seed beds. These three differently prepared plots will be sprayed with a radioactive isotope.

Three treatments are being used in these trials in attempts to remove all or a large part of the fallout. One method is application of an asphalt coating to the soil after it has been sprayed with the isotope. Once it has hardened, the asphalt is removed, carrying with it a thin layer of soil that adheres to it. The test plot is then checked for contamination.

In the second method, a layer of radioactive soil is removed with a road grader, after which the plots are tested for radioactivity.

For the third method, isotope-treated plots are rolled with a 2,000-pound road roller. Some plots are being sprayed with asphalt-water emulsion before rolling, others are sprayed after rolling, and some receive no asphalt coating. Surface layers of different depths are being removed with a road grader. Testing of the plots so treated will determine effectiveness of this method.

Medusa-Head Found In New California Area

SAN FRANCISCO—Medusa-head, a noxious annual grass, was recently discovered growing in the San Joaquin Valley. Previously unknown in the area, the pest was found on range lands of western Merced County.

A recent survey of ranges in the vicinity disclosed that the grass occurs in an area of at least 1,000 acres in western Merced and eastern San Benito counties. The survey was conducted by range technicians of the California Division of Forestry after the weed was first discovered in an area southwest of Los Banos in July, 1956.

The recognized area of infestation in Merced County extends roughly from the junction of the North and South forks of Los Banos Creek along the North Fork and up the Peckham Ridge Firebreak into San Benito County to a point about a mile and one half east of Henrietta Peak. The extent of the infestation is not known at this time, but a continuing search is being conducted in the area and on the west side of the San Joaquin Valley by Division of Forestry range technicians.

"Medusa-head generally has been considered by ranchers as just another variety of 'foxtail,' and its undesirable qualities are not understood," according to Harold W. Wolfram, range technician of the California Division of Forestry. For this reason, he said, the weed has become established on thousands of acres of California's range land, especially in the North Coast Ranges and on the east side of the Sacramento Valley.

Controlled burning has been an effective control method for Medusa-head. Used by the University of California for the past six years on its sheep range at the Hopland Field Station in Mendocino County, burning has been quite successful, according to Mr. Wolfram.

Mr. Wolfram stated that on most infested areas some follow-up treatment is needed during the next year or two to destroy plants starting from seed lodged in gopher holes, cracks in the soil, hoofmarks and similar places. Some seed may remain in the soil for two or three years before germinating.

ANNOUNCES INCORPORATION

HAYWARD, CAL.—W. D. "Hank" Hannibal has announced the incorporation of his Arizona and Nevada Manufacturers' Representative business. Jack Terrell and Charles Grimshaw have been added to the staff.

Dates Set for Northwest Agricultural Chemicals Meet

PORTLAND, ORE.—Dates for the annual Northwest Agricultural Chemicals Industry conference will be Jan. 21-23 at the Benson and Imperial Hotels, Portland. Two additional meetings will be staged in conjunction with the conference.

The Western Cooperative Spray Project will hold two meetings at the same time. Anton S. Horn, University of Idaho extension service, is secretary of the project, with Dr. Harold F. Madsen of University of California as chairman of arrangements for these meetings.

George Kitzmiller, Pacific Co-operatives, Portland, has been named chairman of the Chemicals Industry conference, which is sponsored for industry personnel by the Western Agricultural Chemicals Assn. headquartered at San Jose, Cal.

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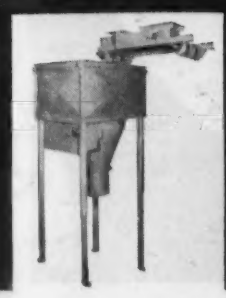

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ROUND TABLE

(Continued from page 1)

collector brought on a lively discussion.

With J. E. Reynolds, Jr., Davison Chemical Co., Div. W. R. Grace & Co., as moderator, this portion of the program brought comments from the audience as well as from scheduled speakers. Observations by various fertilizer manufacturers indicated that cyclones are well-designed for their dust-collecting functions for the most part, but some are rather poor for specific uses.

The presence of moisture in the dusts collected is a big factor in causing solids to build up in cyclones, it was pointed out. Employment of heat to keep the temperature well above the dew point is desirable in some instances, the speakers indicated, but application of heat by external means was viewed as being usually too costly.

A discussion on the cost factors of drying at a lower temperature and increasing the retention time in a gas-fired dryer was approached from the standpoints of cost advantages relative to fuel and electrical cost per ton, and ways in which a furnace might be designed to reduce the potential for formation of fumes due to overheating fertilizer granules.

Dr. G. L. Bridger, Davison Chemical Co., Div. W. R. Grace & Co., Baltimore, commented that materials decompose rapidly at elevated temperatures, causing the formation of fumes and the loss of nitrogen. Fumes begin to form at temperatures from 300° to 500° F., he said, and to prevent fumes and losses it is necessary to keep 100% of the materials from overheating.

He reported that pilot plant studies have shown overheating causes caked materials to give off fumes and also suspends fine particles in the hot air for a longer time than necessary, thus causing them to decompose. Lowering the temperature as the materials are fed in the cold end of the dryer will help to eliminate this condition, he said.

The question of economics when it comes to use of steam was discussed by W. T. Bosman, Federal Chemical Co., Louisville, Ky., and T. R. Schmalz, F. S. Royster Guano Co., Norfolk, Va. They reported that steam is less costly than sulfuric acid, particularly if the latter is used excessively. However some slowness in the drying process was noted in the use of steam and this was regarded as being undesirable. Mr. Schmalz observed that granulation is more economical with the use of steam as compared to acids, and that fumes were reduced when steam was used.

The advantages and disadvantages of wet and dry scrubbers were discussed from the standpoints of efficiency, particle size recovery capabilities, maintenance and investment costs. E. L. Felch, American Agricultural Chemical Co., said that the fog or haze emanating from granular fertilizer plants is a serious problem. Neighbors complain, he said, but the problem of eliminating the situation is a difficult one to solve.

Erection of a high stack, from 200 to 300 ft. tall, will do the job, he indicated, but this has problems, too. Such stacks need to be lined to prevent serious corrosion, which adds to the cost.

A venturi scrubber offers a solution, but requires a large amount of power, water and attention to maintenance, the speaker continued. Likewise is the problem of a bag house where air velocity is a critical factor, and where insulation must be well done to avoid moisture in the house. If the velocity of air is too rapid, drying will be poorly done. The bag house should be preheated, he advised, and the operator should know the temperature at all times.

D. E. Bonn, American Air & Filter Co., observed that the ammoniation process has practically no dust problems in connection, but fumes are bothersome. He showed slides of dust collectors used for dry materials, pointing out how the particle size of fumes is extremely minute, measuring from only .1 to .5 micron in diameter, as compared to the thickness of a newspaper sheet, 74 microns. His slides showed charts of the efficiencies of various types of collectors, with different particle size. Wet collectors were described by the speaker as being more flexible, requiring less maintenance, and less auxiliary heat.

Disadvantages, however, include the fact that corrosion protection is required, water disposal is a problem, and a visible ammonium chloride plume develops.

L. M. Leach, Indiana Farm Bureau, said that the problem of scrubbing out sub-micron dusts was greater with granular materials than with pulverized. He described one installation with a 2,000 cubic feet per minute unit for a 5-20-20 product. Ammonium chloride formed on the outlet filter, he said, but did not enter through the filter. Efficiency of this equipment was about 95%, Mr. Leach reported.

A paper prepared by Joe C. Sharp, Spencer Chemical Co., Kansas City, discussed the basic principles to be considered in the selection of a new granulation plant. For fertilizer grades requiring auxiliary heat and liquid phase, there are two widely-used methods, the paper said. One is making use of heat generated when sulfuric acid is reacted with ammonia, and the other is through the use of steam.

"When the demand for grades that require auxiliary heat is great enough, steam generally costs about 1/10 as much as sulfuric acid per ton of finished product," it was pointed out. However, when the demand for such grades is small, the payout on the steam plant may never be realized, the speaker said.

The importance of accurate weighing and metering devices was emphasized. "Inferior equipment causes off-grade product, costly because of penalties on deficiencies, and overages on material are too costly to be given away. In addition to direct cash loss, the company's reputation is jeopardized," the paper added.

Drying of materials is often a bottleneck, the speaker said, and should have ample capacity provided. Material being dried should never be allowed to come into contact with the flame, he said. Screening should be done at the end of the dryer and sufficient capacity provided, with the product being cooled below 120° F. before going to storage.

Grades containing more than 300 lb. ammonium nitrate a ton should be coated with diatomaceous earth, the paper stated.

In discussing the advantages and disadvantages of controlling all recycle portions returned to the ammoniator-granulator, Al Henderson, Wilson & Toomer Fertilizer Co., Jacksonville, Fla., said that these materials, coming from the air-handling system and the screening system should be controlled at least to some extent. "We believe that it is better to partially control material from the dust system by delivering to the ammoniator by screw conveyor, as against delivering it back to the screen system. As product quality continues to improve, controlling the recycle will become standard practice in the fertilizer industry, he said.

Discussing the economics of a batch system vs. a continuous production system, T. M. Schmalz declared that the two systems are difficult to compare, since so many variable factors enter in. These factors include plant size, grades being produced, the type of equipment, and the type of technical personnel available. In small plants, where fume control is not a factor, the batch method is suitable, but in a larger operation where nitrogen content is high, the continuous method will be more economical. If the plant is located in a congested area, the lack of fumes is more significant.

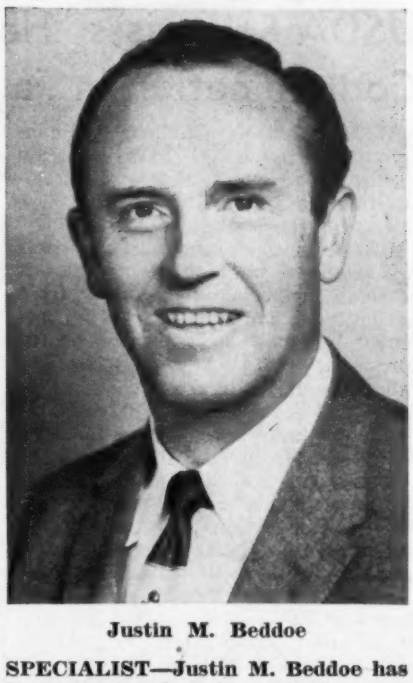
For the future, Mr. Schmalz ventured, the continuous production system appears favored for greater development.

Experiences in applying suction to the classification screens in the fertilizer plant were described by Frank Nielsson, International Minerals & Chemical Corp. and Wayne W. King, W. B. Tyler Co., Baltimore, Md. A description of the mechanics involved was presented, along with slides projected on the screen for illustration. It was explained that the down current of air keeps hoppers clean, affords nearly complete recovery of fines and reduces the condensation of moisture in hoppers.

In discussing the techniques of ammoniation in connection with the efficiency of operation, Elmer Perrine, Nitrogen Division, Allied Chemical Corp., New York, pointed out that this technique is of top importance in fertilizer manufacturing. If done incorrectly, the ammoniation step can lead to excessive fumes, flash fires, and great losses of materials.

If the masses become too large, gas is given off; the particle size or superphosphate must be correct, and if the material is allowed to agglomerate too much, it may prevent thorough ammoniation by protecting the superphosphate within the mass from being reached by the ammonia.

Whether granulated mixed fertilizer should be screened between the dryer and cooler or after the material has left the cooler, was discussed by Dr. Bridger, F. A. Retzke, Smith Agricultural Chemi-



Justin M. Beddoe

SPECIALIST—Justin M. Beddoe has been appointed grain sanitation specialist for the Douglas Chemical Co., announced Donald G. Farmer, director of sales and advertising. Mr. Beddoe is also the company's district manager for Washington, Oregon, Idaho, northern Utah and western Montana. He was previously associated with the Albers Milling Co., Spokane, Wash.

1959 LOCATION NAMED

WASHINGTON — A nearly unanimous decision to hold the 1959 Fertilizer Industry Round Table in Washington, D.C., was recorded at the 1958 event when a show of hands was requested by Dr. Vincent Sauchelli, chemical technologist of the National Plant Food Institute, general chairman of the Round Table. Some suggestions had been made to hold subsequent meetings in other locations, but the membership voted down the idea. Dates for the 1959 Round Table were therefore set for Nov. 4-6 at the Mayflower Hotel, Washington, same location as this year.

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cal Co., Columbus, and Mr. Leach. They said that the answer depends largely upon the grade of fertilizer desired. For instance, the decision on when to screen high nitrogen grades is not difficult since when hot, these materials are sticky and plastic, difficult to screen. Thus, it is better to do it after cooling.

Dr. W. L. Hill, USDA, appearing on the final program Friday, Nov. 7, discussed factors which make a formula either a high or low analysis grade. He said that any grade using 20% superphosphate is considered "low" in some areas, but in others, it might not be so regarded. Manufacturers may resent having their product termed "low," but on the other hand, the term "high analysis" does not of itself add anything to the efficacy of plant food.

Perhaps each state should have its own terminology, he suggested. A three-fold classification of high, intermediate, and low was mentioned as a possible solution to the problem of grading.

T. P. Hignett, Tennessee Valley Authority, announced that TVA is presently operating on the policy of making available to fertilizer manufacturers, new products evolved in TVA pilot plants. A maximum of 200 tons a year may be ordered by private manufacturers, but the applicant must state the process he uses and agree to report to TVA the results of using such materials.

Available under such arrangements, are concentrated superphosphate, 54%; calcium metaphosphate, 64% P_2O_5; di-ammonium phosphate, 21-53-0; ammonium phosphate-nitrate, 30-10-0; and superphosphoric acid. Prices are purposely set at a low level to furnish incentive for the fertilizer industry to try out new formulas, he said. All materials are sold f.o.b. Sheffield, Ala., where information on prices of such materials is available.

Triple superphosphate, phosphoric acid and diammonium phosphate are already commercially available from TVA, Dr. Hignett said.

Dan Hogan, Jr., Named Garden Show Chairman

PORTLAND, ORE. — Dan Hogan, Jr., California Spray-Chemical Corp., Portland, has been appointed chairman for the 1959 Pacific Northwest Garden Supply Trade Show, it is announced by Harold Davis, president, Oregon Feed and Seed Dealers Assn., sponsors of the event.

Mr. Hogan, a member of the trade show committee for the past several years, succeeds Frank Stewart, Miller's Products, Portland, general chairman for the 1957 and 1958 shows. Remainder of the 1959 show committee will be appointed in the immediate future.

Mr. Hogan announces that dates for next fall's show have been set for Tuesday and Wednesday, Oct. 27-28. The site is tentatively set for the Masonic Temple, with the final decision to be made at the first meeting of the new committee.

Already arrangements are underway to greatly increase the amount of display space at the 1959 show. This year's successful event, the largest in the show's history, attracted 65 exhibitors and a new attendance high of 1,429 garden supply dealers from throughout the Pacific Slope.

New Facility Planned

BOISE, IDAHO — Dean Cohick, manager of the Stephan Regan Co., Salt Lake City, has announced the purchase of a one acre tract for construction of a warehouse.

An immediate start on the 15,000 square foot facility will provide offices, railway trackage and parking facilities for customer service. The firm distributes farm and building supplies and materials, weed control chemicals, insecticides and related items.

AIRPLANE IN FARMING

(Continued from page 1)

managed by Joe Sellers, early day pilot and inventor who recently marketed a device permitting multiple use of one plane for dust, spray and fertilizers.

The Agricultural Aircraft Assn. has its headquarters at Chandler Field in Fresno. Carberry Crop Dusters is located near Fresno. In addition to 20 line aircraft, the Carberry facilities consist of a repair shop with a full time crew of eight men and 10 to 12 pilots.

Sacramento is also an important city for the industry. It houses the State Department of Agriculture's Bureau of Chemistry and is the home port of long-time crop duster, T. C. (Red) Jensen, holder of License No. 1. Not only do pilots and other pest control operators take their examinations and get their licenses at Sacramento, but the bureau is charged with regulating the labeling and sale of fertilizers and pesticides, governing the use of injurious materials and setting limits for pesticide residue on fruits and vegetables.

One third of all the pest control business in the United States is done in California, according to Robert Z. Rollins, chief of the bureau. In addition, two thirds of the land is treated by licensed agricultural aircraft operators rather than by the farmer himself.

In 1956, Mr. Rollins said, California aircraft operators, using both spray and dust, treated 4,019,471 acres of field crops, including cotton, alfalfa, clover and rice. More than 855,000 acres of vegetables—potatoes, tomatoes, and lettuce — were treated. Range and pasture land accounted for 237,122 acres, and 171,182 acres of grapes and 110,992 acres of deciduous fruit were dusted or sprayed.

In 1957, the bureau licensed 1,370 pest control operators, of which 460 were pilots, 177 were apprentice pilots, and the remainder were ground operators. To obtain a certificate, a pilot must have completed in California within the last two years 150 hours of airplane operation or 50 hours of helicopter flying in seeding, fertilizing and pest control activities, pass a written examination on the nature and effect of the chemicals he will use, and pay a $25 fee.

Wesley Yates, assistant professor in agricultural engineering at the University of California at Davis, has been conducting research in the use of agricultural aircraft for the past several years. Although neither a pilot nor a chemist, Mr. Yates is studying spray patterns with various types of nozzles and arrangements. The object of Mr. Yates' work is to find more efficient methods of using chemicals.

The men who pilot the planes at Carberry range in age from 30 to 45 years. Their average experience is 8,000 hours in the air with about six years devoted to agricultural work. According to Mr. Sellers and Tom Fisher, manager of Carberry, the lack of qualified pilots is becoming a real concern to the industry.

Immediately after World War II and again after the Korean conflict, many ex-service pilots turned their talents to crop dusting. Now, however, the jet age does not produce military pilots with experience in propeller driven planes.

Atwood, like most of the larger operators, requires at least 500 hours of flying time of the pilots it hires, then trains them for the work they will do. Mr. Sellers says, "We don't feel that a pilot who has been trained for planting rice, for instance, is qualified for dusting operations until he has had 50 or more hours of dual flying at that work. We also give our pilots a course in entomology for our own protection."

Both Mr. Sellers and Mr. Fisher suggest that some state college, such as Cal Poly with its own air strip, should provide a complete course for crop dusters. This would include a study of chemicals, laws relative to application and operation of equipment, and instruction in standard flying procedures. At present, there is no school offering such a course. Authorities say present demand does not justify the expense involved.

Crop dusting pilots have a drawing account and are paid a commission based on the gross amount of work they do. Sometimes, this includes a small amount of selling. Pay can run from a low of $6,000 to a high of $16,000, but a pilot employed on a permanent basis by a good operator can expect to make about $10,000 a year.

The World War II training planes now used in dusting work are scheduled to be gradually replaced by new and more expensive aircraft specifically designed for aerial application. These new ships, just coming off the assembly lines, will be equipped with World War II engines.

New in the equipment line is Mr. Sellers' invention, the Swathmaster. It is a stainless steel unit, shaped like an airplane wing. Mr. Sellers says one plane can be used for dusting, spraying or fertilizing simply by resetting the pilot control. The usual commercial practices require one plane for dusts and another for liquids for each pilot.

The Swathmaster has no moving parts and can be adjusted, Mr. Sellers says, to spray from one to 180 gallons to the acre, dust from 10 to 100 lb. to the acre or spread fertilizer at from 10 to 1,000 lb. to the acre. With a minor change, it can dump 200 gallons of liquid on a fire in five seconds. The swath can also be adjusted from the standard width of 33 feet up to 100 ft.

Newest development within the Agricultural Aircraft Assn. itself is a group compensation insurance plan for its members, along the same lines as that enjoyed by Farm Bureau members. Another innovation is a plastic "dog tag" worn by each pilot giving his name, address, blood type and employer's name. It calls attention to his work with dangerous agricultural chemicals and urges "that if found abnormal" he be rushed to the hospital.

The 13-year-old organization has a number of other projects pending. It is working for adoption of a federal certificate for agricultural aircraft operators; federal gas tax refund; a study of regulations covering bonding; and state legislation requiring licenses for chemical salesmen.

C-I-L Has Open House At New Granular Plant

MONTREAL—Several hundred farmers in southwestern Ontario recently attended a three-day open house at the new granular fertilizer plant of Canadian Industries Limited at Chatham, Ontario. The event marked the official opening of the first fertilizer plant in eastern Canada designed to produce completely granulated fertilizer.

The plant and equipment were designed by C-I-L's engineering department in cooperation with A. J. Sackett & Sons Co. of Baltimore. Two other granulation plants of similar design are being built by C-I-L at Hamilton and Ingersoll, Ontario, and are expected to be in production before the end of 1958.

New Fertilizer Firm

EVANSVILLE, IND.—Midland Agricultural Center started here recently with 15 employees to manufacture liquid farm fertilizers.

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NAC HEAD OBSERVES . . .

Greater Progress in Future Depends Upon Pesticide Trade's Solving Profit Problem

HOW THE pesticide industry has developed over the past quarter-century was outlined by many of the speakers at the recent 25th anniversary meeting of the National Agricultural Chemicals Assn. at Savannah. Association members might well be proud of the part the organization has played in making possible this progress and may look forward to continuing growth and development.

Jack V. Vernon, president of the group, pointed out some statistics which bear repeating in order to gain a better perspective on how the industry has grown. In 1933, he said, farmers in the U.S. spent $29 million for pesticides, as compared to some $260 million last year, according to U.S. Department of Agriculture figures. This, he said, marks an increase of 800% in 25 years.

But these figures don't tell the whole story, he added. The totals quoted above do not include expenditures by farmers for sprays and dusts used in buildings and on cattle. The latest figure available indicates that $12 million was spent for this purpose in 1952, and it is well known that the amount spent on this level since that time has increased considerably. Further, Mr. Vernon said, the amounts spent with custom operators should be added to any over-all total figured for expenditures of pesticidal materials and services.

Even more impressive figures have been provided by NAC, which has projected dollar volume of sales from estimates of production at the basic manufacturers' level, he said. The value at this level moved from an estimated $27 million in 1930, to $30 million in 1935.

The corresponding total for 1956 was $250 million. Translated as an estimate of what farmers paid at retail, the total becomes $400 million. This is but 60% of the total market for these chemicals; 20% is applied in non-farm use in the United States, 20% is exported.

Still another measure of growth and progress is the total poundage of pesticides produced. In the past 25 years there has been a more than 7½-fold increase.

"Related to all of the foregoing, and crucially important in its influence on future growth and profits, is research by industry in all aspects of pest control, including the safe and most efficient use of our products," the president said.

"Currently industry is supporting research (and development) at the rate of more than $20 million annually. This follows extensive investment in laboratory facilities, experimental farms and other fixed assets dedicated to research. Our dollar costs for research this year are 150% above the total for 1950. It was not so many years ago that industry spent less than $1 million annually for research.

"Pest control research of the USDA is currently costing $5 million annually, that of the land grant colleges is estimated at $4 million. These expenditures, added to industry's total, make for an annual research bill—from all major sources—of $29 million.

"This is a substantial sum," Mr. Vernon reminded. "I think we can all take it for granted that any change will be upward rather than otherwise. Yet research must be maintained and pushed more vigorously, and more skillfully. To falter here is to invite industry stagnation.

Along with his observations of the past few years, Mr. Vernon also reminded his hearers that the pesticide industry has some peculiarities which add to the complexity. In the first place, the industry operates on a low profit, he said. This statement needs no amplification, nor does his comment that the industry's inventory problem is unusually complex. Anyone doing business in this area is well acquainted with the unusual pressures of farm economics, weather, and the presence or absence of significant insects and other pests.

Also, following the inventory situation is the one comprising accounts receivable which Mr. Vernon says "adds up to another problem of perplexing magnitude." All of these vexations, including that of increasing investments in research and development, contribute directly to the central enigma . . . how to increase the over-all return on investment.

These problems have not been studied and discussed enough within the industry, the president declared. "I favor more study, more discussion. I believe this is the first step on the road to an economically stronger industry at every level of operations."

Perhaps this will be one of the keys to future development in the pesticide industry. Certainly greater attention must be paid to the basic ideal of making the industry a more profitable field of activity.

Round Table Sessions Well Worthwhile

IT WOULD be a difficult assignment for anyone to find a group more attentive to the project at hand than were those 350 men who made up the fertilizer industry round table in Washington recently. The subject matter being discussed was not meant to be entertaining, although some speakers exhibited a neat sense of humor; the seats became uncomfortable after hours of sitting; the bright fall weather outside was inviting; and the schedule inside was rigorous. Yet, nearly 100% of those registered remained faithfully in their places to hear the latest word on fertilizer manufacturing and ways to accomplish it more economically.

We submit that such an exhibition is significant. It shows a need for greater dissemination of information about practical technical matters of the trade; a broader concept of the factors governing both the technology and the economics of the plant food industry; and the fact that responsible leaders of the industry are willing to travel long distances to gain this type of information.

Dr. Vincent Sauchelli, general chairman of the Round Table, remains its guiding light and has every reason to be proud of its development over the period of just a few years. The record-breaking crowd, some 30% larger than the number attending the same meeting in 1957, which in turn broke the previous record, attests to the importance of the discussions and brands the plant food industry as a forward-looking group eager to make even further progress.

Technical meetings like the Round Table, though often couched deeply in the language of the chemical engineer and production experts, afford an opportunity for all practical-minded men to exchange ideas on common ground.

The plant food industry gains in stature and in maturity from meetings such as the Round Table. Next year's gathering is likely to be every bit as thoughtful and as productive of ideas. We trust that many in the trade who failed to get to the meeting in 1958 will plan to do so on Nov. 4-6 next year.

Croplife's Home Office

Croplife

BPA — *Member of Business Publications Audit*

NBP — *Member of National Business Publications*

CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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MEETING MEMOS

Nov. 20 — Midwest Conference on Control of Soil Insects Attacking Corn, LaSalle Hotel, Chicago, Ill.

Dec. 3-4—Alabama Soil Fertility Society, Annual Meeting, Whitley Hotel, Montgomery, Ala., Charles W. Summerour, P.O. Box 120, Montgomery, Ala., Secretary-Treasurer.

Jan. 27-28—Nematology Workshop, Portland, Ore., sponsored by Shell Chemical Corp.

Jan. 29—South Dakota Fertilizer Dealer Short Course, South Dakota State College, Brookings, S.D.

Feb. 12-13—Midwestern Agronomists-Fertilizer Industry Representatives, 11th annual meeting, Edgewater Beach Hotel, Chicago, Ill., sponsored by National Plant Food Institute.

Feb. 24-25—Alabama Pest Control Conference, Alabama Polytechnic Institute, W. G. Eden, Secretary-Treasurer, Alabama Association for Control of Economic Pests, Alabama Polytechnic Institute, Auburn, Ala.

Meeting Memos listed above are being listed in this department this week for the first time.

Nov. 18—Arizona Agricultural Chemicals Assn., annual meeting, Westward Ho Hotel, Phoenix, Ariz.

Nov. 18-20—Washington State Weed Conference, Moses Lake, Wash.

Nov. 19-20—Carolinas-Virginia Pesticide Formulators' Assn., Carolina Hotel, Pinehurst, N.C.

Nov. 20—Rutgers' Annual Pesticide Dealers' Conference, Rutgers University Commons, George St., New Brunswick, N.J.

Nov. 20-21—Two Day Joint Meeting, National Agricultural Chemicals Assn. and Commercial Chemical Development Assn., Lord Baltimore Hotel, Baltimore, Md.

Nov. 24-25—Entomological Society of America, Eastern Branch, Annual Meeting, Lord Baltimore Hotel, Baltimore.

Nov. 25—Eighth Semi-Annual Meeting and Winter Conference, Manufacturing Chemists' Assn., Hotel Statler, New York.

Dec. 1-4—Entomological Society of America, Annual Meeting, Hotel Utah, Salt Lake City.

Dec. 2-3—Far West Regional Accident Prevention School, Fresno, Cal.

Dec. 3-4—North Central Weed Control Conference, Netherland Hilton Hotel, Cincinnati.

Dec. 3-4—Annual Soil Fertility and Plant Nutrition Short Course, University of Missouri, College of Agriculture, Columbia, Mo.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 4-5 — Southeastern Conference on Mineral Nutrition of Forest Trees, Duke University, Durham, N.C.

Dec. 8—Annual Soils and Fertilizer Short Course, Coffey Hall, University of Minnesota Institute of Agriculture, St. Paul.

Dec. 8-10—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

1959

Jan. 7-8 — Fertilizer Short Course, Iowa State College, Ames.

Jan. 7-8—Fifth Annual Insect Control Conference, Mississippi State University, State College, Miss.

Jan. 7-9—Thirteenth Annual Northeastern Weed Control Conference, Hotel New Yorker, New York.

Jan. 12-13—Ohio Pesticide Institute, annual winter meeting, Neil House, Columbus, Ohio. J. D. Wilson, Secretary, Agricultural Experiment Station, Wooster, Ohio.

Jan. 20-22—California Weed Conference, Miramar Hotel, Santa Barbara, Cal.

Jan. 21-22—Northwest Agricultural Chemicals Industry Conference, Benson Hotel, Portland, Ore.; George Kitzmiller, Pacific Cooperatives, Portland, conference chairman.

Jan. 21-23—Western Cooperative Spray Project, Benson and Imperial Hotels, Portland, Ore.

Jan. 22-24 — Agricultural Aircraft Assn., Senator Hotel, Sacramento, Cal.; Wanda Branstetter, Chandler Field, Fresno, Cal., Executive Secretary.

Jan. 28-29 — Illinois Custom Spray Operators' Training School, 11th annual meeting, University of Illinois, Urbana.

Jan. 29-30—Colorado Agricultural Chemicals Assn., Cosmopolitan Hotel, Denver. D. E. Garrison, Box 623, Greeley, Colo., secretary.

June 9-10—Seventeenth Annual Convention of the Association of Southern Feed and Fertilizer Control Officials, Velda Rose Motel, Hot Springs, Ark.; Bruce Poundstone, University of Kentucky, Lexington, Ky., secretary-treasurer.

July 7-9 — Pacific Northwest Plant Food Assn., 10th Annual Regional Fertilizer Conerence, Tacoma, Wash.

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Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15c per word; minimum charge $2.25. Situations wanted, 10c a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20c per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Advertisements of new machinery, products and services accepted for insertion at minimum rate of $10 per column inch.

All Want Ads cash with order.

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OPPORTUNITY FOR GOOD, LIVE, YOUNG to middle aged man—experienced in selling garden supplies—such as peat moss, field and garden seeds, commercial fertilizers, insecticides, herbicides, etc.—to nurserymen. To travel states of Texas, Oklahoma, Louisiana and New Mexico. Must have own car. Write—giving references as to character, sales ability, etc., to E. C. Heid, President, Heid Bros. Corp., P. O. Box 98, El Paso, Texas.

FARM CHEMICALS SALESMAN

Monsanto is expanding its Farm Chemicals program and has an opening for a man experienced in selling agricultural chemical formulations to distributors. Prefer age 27-35 with degree in Agriculture or similar training. Salary plus car and expenses.

MONSANTO CHEMICAL COMPANY
Lindbergh and Olive Street Road
St. Louis 24, Missouri
Attn: J. E. Russell

HELP WANTED

SALES REPRESENTATIVE for nitrogen producer. Excellent opportunity. Agricultural or chemical education. Location Missouri. Three to five years' experience selling to fertilizer manufacturers. Salary based on experience. Address Ad No. 4285, Croplife, Minneapolis 40, Minn.

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KILL SUBMERSED water weeds which foul up motor propellers, tangle fishing gear and choke irrigation ditches with R-H Granular Weed Rhap. Inexpensive, easy to use, sure results. For details write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

KILL BRUSH at low cost with amazing R-H Brush Rhap. Will not injure grasses, grains, cattle, or other animals. See your dealer, or write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

Croplife *Want Ads . . . Get Results*

New Phosphate Sources Found in Southwest Pacific

MELBOURNE, AUSTRALIA—Geologists of the Bureau of Mineral Resources have completed the first phase of a search for new phosphate deposits in the Southwest Pacific. Although no large high grade deposits have been found, the geologists proved the presence of low grade phosphate rock on Bellona Island in the British Solomons. About 300,000 tons of phosphate were also discovered on several islands in the northwestern sector of New Guinea.

Officials said that the bureau was anxious to find new workable deposits for use when the present high-grade phosphate from the Nauru and Christmas Islands was exhausted. At present rate these deposits are expected to be worked out in about 20 years.

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what's your E.Q.*?

QUESTIONS

	True	False
1. Inorganic salts are frequently added to oil-water systems to break emulsions.	☐	☐
2. It is impossible to prepare practical emulsions in which the aqueous phase contains high concentrations of inorganic salts.	☐	☐
3. Good agricultural emulsifiers may be characterized as individual specific chemical compounds.	☐	☐
4. The anionic components of an agricultural emulsifier impart improved performance in soft water.	☐	☐
5. A good emulsifier can be fully characterized by the ratio of anionic to nonionic components.	☐	☐
6. The active ingredient content of an emulsifier is the chief criterion of its efficiency.	☐	☐
7. Variations in toxicant, solvent and waters require adjustments in emulsifier blend for optimum performance.	☐	☐
8. The ratio of the emulsifiers in a matched pair need not be altered when the concentrate is used at high or low dilution rates.	☐	☐
9. In general, it is safer to formulate slightly higher on the nonionic side than on the anionic side when employing matched pairs.	☐	☐
10. Most formulators use the correct amount of emulsifier in their emulsifiable concentrates.	☐	☐

***Emulsifier Quality**

ANSWERS

1. True. Most emulsifiers "salt out" in the presence of inorganic salts which impairs their function and breaks the emulsion.
2. False. Emcols H-A, H-B and H-C are used to emulsify insecticides in concentrated mixed fertilizer solutions in which the salt concentration may approach saturation. These emulsifiers have a unique tolerance to high salt concentrations.
3. False. Most efficient agricultural emulsifiers are blends of several anionic and nonionic surfactants.
4. True, if properly balanced with nonionic components. Conversely, the nonionic components of such an emulsifier impart improved performance in hard water.
5. False. It is not sufficient to balance the anionic-nonionic ratio. Since both anionic and nonionic components have hydrophilic and lipophilic properties, each in turn must be properly balanced to obtain maximum efficiency at the minimum use level. This requires blending several components, in some cases as many as 12 different surfactants.
6. False. The composition of the separate components and their balance is the prime consideration.
7. True. This is achieved most conveniently by the use of matched pairs of emulsifiers.
8. False. The rate of dilution required by the particular field application affects the blend of the matched pair necessary for optimum performance.
9. True. An excess of nonionic may result in excessive creaming which can easily be redispersed, but an excess of anionic may result in a tendency toward oil separation.
10. Only you can answer this. If you are using Emcols, you are saving money because they can be used at low use levels and give outstanding aging stability. Low moisture content, the rigidly controlled components, and Emcol know-how allow you to manufacture superior concentrates at competitive prices.

SCORING: If most of your answers were correct, you definitely have emulsifier "know-how". And most formulators with "know-how" look to Emulsol for leadership in the field of emulsifiers for the pesticide industry. This leadership is based on continued **research** into new problems which arise such as liquid-pesticide, liquid fertilizer formulations . . . on rigid **control of production** by an outstanding staff of chemists . . . on **technical service** to help you with your particular problems.

Send for Emulsol's new Manual on "Pesticide Formulation", Dept. CR-11

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